

16.—*Contributions to the Crustacean Fauna of South Africa.*—

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(Plates XXVII.—XXXIX.)

3.—ADDITIONS TO THE MARINE ISOPODA, WITH NOTES ON SOME
PREVIOUSLY INCOMPLETELY KNOWN SPECIES.

(Plates XXVII.—XXXVIII.)

THE following paper is the result of the examination of a large quantity of Marine Isopods collected at various times partly by the Cape Government trawler s.s. "Pieter Faure" and partly by members of the staff of the South African Museum. It contains descriptions of 8 new genera, 42 new species, and one new variety.

These numbers, though somewhat surprising, are but evidence of the richness of the South African crustacean fauna: a fauna which has only in recent years been systematically explored. Even so it is safe to say that only the fringe has been touched, and that there is still much to be done, especially as regards the minuter forms. Of the latter, those described in the following pages come exclusively from the littoral region of Table Bay and False Bay. With the exception of these two localities and the Natal coast the littoral region has been scarcely examined, even superficially. As an example of the results of older methods of collecting, it may be mentioned that Krauss, the pioneer of South African Carcinology, obtained only 19 *specimens* of Sphaeromids from Table Bay and the Natal coast.

The remaining 25 species consist of species either hitherto incompletely known or not recorded from South African waters.

Through the kindness of Dr. Lampert, Director of the Stuttgart Museum, I have been permitted to examine the specimens of Sphaeromids collected by Krauss in 1838-42. The specimens have been preserved dry, but otherwise they are in excellent condition and leave no doubt as to their identity with the fresh spirit specimens at my disposal. The result of this examination has been to exclude

four species included hitherto in the South African fauna and to fix the systematic position of the only species described by Krauss as new. The following is a list of Krauss' names with their equivalents:—

<i>Sphaeroma savignii</i>	= <i>Dynamenella kraussi</i> , n. sp.
<i>Sphaeroma macrocephala</i> , Krss.	= <i>Dynamenella macrocephala</i> (Krss.).
<i>Sphaeroma perforata</i>	= <i>Parisocladus stimpsoni</i> (Heller), n. gen.
<i>Sphaeroma jurinii</i>	= <i>Exosphaeroma gigas</i> (Leach).
<i>Sphaeroma tristense</i>	= <i>Exosphaeroma kraussi</i> , Tattersall.

With regard to the last Tattersall (1913) has already suggested that Krauss' *tristense* was not Leach's *tristense*, and described it as a new species.

Dr. L. von Lorenz, Director of the k.k. naturh. Hofmuseum in Vienna, has also very kindly transmitted for my examination the Sphaeromids collected by the "Novara" expedition in 1857-9 and described by Heller. As a result, my identification of *S. scabricula*, Heller, and *S. stimpsoni*, Heller, have been confirmed, as also the specific identity of certain Cape specimens with the *S. perforata* of Heller, and also in all probability with the *S. perforata* of M. Edwards. A few of Heller's mistakes in regard to *S. stimpsoni* and *S. perforata*, which have caused trouble to previous workers, have been corrected. Hansen's opinion (1905) that *S. integra*, Heller, should be referred to *Isocladus* is shown to be correct, and at the same time the specific distinctness of *S. integra*, Heller, and *S. tristense*, Leach.

In the genus *Cymodoce* the difficulty of assigning the females to their respective males, especially when not taken in the same haul, is a recognized drawback to correct classification. In the present collection *C. acanthiger*, *umbonata*, and *uniquiculata*, n. spp., are the only species of which both sexes were taken in the same haul. In the case of the others the specimens were found to group themselves around certain localities; males being taken in one haul in one place and females in another haul not very far away. Where in such cases the males and females show a close agreement in the details of the appendages, I have considered it not too great an assumption to regard those males and females as belonging to the same species, e.g., *C. valida*, Stebb., *africana*, n. sp., and *comans*, n. sp.

As far as present knowledge goes there seems to be little difference between the faunas of Table Bay and False Bay. There is, however,

a notable difference in size in Sphaeromids; specimens from the (colder) west coast of the Cape Peninsula being larger than those of the same species from the (warmer) east coast.

Throughout the present paper I have adopted the plan of counting seven peraeopods, instead of two gnathopods and five peraeopods, in the Isopoda Anomala as well as the Isopoda Genuina.

The types of all the new species are in the South African Museum.

For answering my inquiries and giving me advice on certain points I am under obligations, and wish herewith to express my thanks to: Dr. W. T. Calman of the British Museum, Dr. C. Chilton of Christchurch, N.Z., Dr. H. J. Hansen of Copenhagen, and Dr. W. M. Tattersall of Manchester. To Dr. Lampert and Dr. von Lorenz I am especially indebted for entrusting respectively Krauss' and Heller's specimens to me for examination. To my friends Mr. J. H. Orton of the Plymouth Marine Laboratory, Mr. F. W. Edwards of the British Museum, and Mr. H. Watson of Cambridge, I wish to express my thanks for copying descriptions and tracing figures in works otherwise inaccessible to me.

FAMILY APSEUDIDAE.

1880. *Apseudidae*, Sars, Arch. Naturg. Christian. vol. 7, p. 6.
1910. „ Stebbing, Tr. Linn. Soc. Lond. Zool. vol. 14, pt. 1,
p. 85. (References.)

GEN. APSEUDES, Leach.

1814. *Apseudes*, Leach, Edinb. Encycl. vol. 7, p. 404.
1902. „ Stebbing, S.A. Crust. pt. 2, p. 48.
1905. „ Richardson, Bull. U.S. Nat. Mus. No. 54, p. 37.
1907. „ Nobili, Mem. Acc. Torino, ser. 2, vol. 57, p. 411.
1911. „ Richardson, Bull. Mus. d'Hist. Nat. 1911, No. 7,
p. 518.
1912. „ id. Proc. U.S. Nat. Mus. vol. 42 (1912), p. 583.
1912. „ id. ibid. vol. 43 (1913), p. 159.
1913. „ Hansen, Danish Ingolf-Exp. vol. 3, pt. 3, p. 10.

APSEUDES DELTOIDES, n. sp.

(Plate XXVII. B.)

Body widest across the carapace which is composed of the head and 1st peraeon segment fused. Rostrum triangular with denticulate margins, the denticulations being quadrate and regular near the

base, but triangular and irregular apically. Eyes very small, of 5-6 facets.

Peraeon segments all equal in length, epimera narrow, only that on 2nd segment produced forwards as an acute spine.

Pleon segments nearly half the length of the peraeon segments, the 6th abruptly narrower than 5th, telson as long as broad, shortly and obtusely produced between the bases of the uropods, lateral margin with one small notch bearing a seta.

First antenna, 1st joint with 3-4 blunt spines on outer margin and 3 smaller acute ones on inner margin, 2nd joint rather more than $\frac{1}{4}$ length of 1st, 3rd shorter still, flagellum 12-jointed, accessory flagellum 6-jointed.

Second antenna, 2nd joint with large blunt tubercles on inner margin (ca. 4 near base and 3 near apex), 3rd, 4th, and 5th joints much narrower than 2nd, flagellum 7-jointed, scale on end of 2nd joint scarcely as long as 3rd joint, with apical setae.

Mandible, cutting-edge 4-dentate in left, entire in right, secondary cutting-edge in left entire, in right more or less bifid, spine-row with 4-5 spines, molar prominent, curved, palp strong, 1st and 2nd joints subequal, 3rd a little shorter, all three especially the 2nd and 3rd setose on inner margin.

First maxilla, outer lobe with ca. 8 spines, inner with 4 setae, with 2-jointed backwardly directed palp.

Second maxilla, outer and middle lobes subequal, inner lobe broader, rounded.

Maxilliped, 2nd joint stout, not quite as long as broad, inner plate quadrate, wider distally with 3-4 teeth on inner margin, 3rd joint short, 4th joint stout with 3 strong spines on outer margin, 5th joint oval, 6th joint obovate, apex of inner plate and inner margins of 4th-6th joints setose.

First peraeopod (gnathopod), 2nd joint subquadrate (3rd absent), 4th small, triangular, obliquely joined to 5th, which is as long as 2nd, 6th large and strong, projecting process (thumb) with 3 large teeth before the terminal tooth, 7th joint (finger) narrowing rapidly from base to apex, slightly curved. No epipod was observed on either of the peraeopods.

Second peraeopod stout, 2nd joint half as long again as wide, outer margin dentate and setose, 3rd small, inconspicuous, 4th as long as 2nd, with 1 spine on both inner and outer apices, 5th shorter with 2 spines on inner and 1 on outer apex, 6th a little longer than 5th, inner margin with 3 strong spines, outer margin with 2, 7th nearly as long as 6th, strong, scarcely curved. A small epipod at base of 2nd joint.

Third to seventh peraeopods slender, 2nd joint about 3 times as long as broad, 3rd very short, 4th and 5th subequal, each with 2 short spines on inner apex and 1 long one on outer apex (except in 7th peraeopod, where there are only a few setae on inner margin), 6th joint in peraeopods 3-6 as long as 4th and 5th together, inner margin with 3-4 spines, in 7th peraeopod 6th joint only a little longer than 5th and without spines on inner margin, 7th joint nearly as long as 6th, slightly curved.

Five pairs of pleopods with rami nearly twice length of peduncle, narrow oblong, setose, uniarticulate.

Uropods, peduncle equal to length of 6th pleon segment, inner ramus twice length of 6th pleon segment and telson together, ca. 12-jointed, outer ramus one-third length of inner, 2-jointed.

Length: 4 mm.; *breadth*: 1 mm.

Colour: In spirit, uniform whitish.

Locality: Gt. Fish Point Lighthouse N. by W., distant 7 miles, 49 fathoms. 4/9/01. One specimen. s.s. "Pieter Faure." (S.A.M. No. A248.)

The specific name refers to the shape of the rostrum, which is unique in both the genus and the family. Although I have succeeded in finding an epipod only on the 2nd peraeopod (and that only on the one side), I nevertheless assign this species to the genus *Apseudes* on account of the general conformity of its characters, although later it may have to be removed to another genus. In the absence of more and better material this cannot be done.

APSEUDES AVICULARIA, n. sp.

(Plate XXVII. A.)

Body, especially the anterior portions, with surface finely pitted. Head plus 1st peraeon segment longer than broad, smooth except for several grooves, rostrum triangular, broader than long, ending in a small point, the lateral margins slightly convex; antero-lateral angles of head not prominent, the eyes fairly large, well marked, black. Peraeon segments 2-7 gradually decreasing in width, their dorsal surfaces divided by shallow grooves into 5 low rounded humps, becoming less distinct on the posterior segments. Pleon segments 1-5 short, subequal, only the 5th with a lateral acute projection, 6th segment not distinct from telson, with a lateral acute projection at base and 2 pointed tubercles on upper surface, telson broader than long, ending in a stout pointed projection as long as telson and curving slightly upwards.

First antenna, basal joint stout with a few small serrations on inner margin, 2nd joint one-third length of 1st, 3rd joint shorter than 2nd, only 4 joints of the flagellum remaining, accessory flagellum 2-jointed.

Second antenna, 1st joint broad, 2nd narrower but equal in length to 1st, 3rd joint shortest, 4th and 5th successively longer, flagellum 3-jointed, 2nd joint longest, 3rd very small, scale on 2nd peduncular joint as long as 3rd joint, with 2 apical setae.

Upper lip with distal margin evenly rounded, epistome with a tubercle in centre.

Lower lip, basal portion broad, the lobe on the exterior distal angle ovate, margins minutely setulose, apex acute.

Mandibles similar to those figured by G. O. Sars for *A. spinosus*, M. Sars, cutting-edge on left mandible quadridentate, on right tridentate, secondary cutting-edge on left tridentate, 1st joint of palp short, 2nd and 3rd subequal, twice as long as 1st.

First maxilla, outer lobe with 6 spines in pairs, the backwardly directed palp with 2 long and 1 short setae (inner lobe lost in dissection).

Second maxilla, all three lobes equal in width.

Maxillipeds, 2nd joint largest, inner plate distally truncate and slightly emarginate, 5th and 6th joints nearly as broad as long, their apices broader than their bases, inner margins of inner plate, 4th and 5th joints, and apex of 6th setose.

First peraeopod (gnathopod), 2nd joint largest, ovate, (3rd absent) 4th and 5th slender, oblong, 5th longer than 4th, 6th and 7th together nearly equal to the 2nd joint, thumb of 6th joint with a square projection just before the apex on inner margin, a few setae on outer and inner margins, 7th joint evenly curved with a low rounded process just before the unguis.

Second peraeopod, 4th joint with one spine on both outer and inner apices, 5th joint with one spine on outer apex and 2 spines on inner margin, 6th joint not expanded, with 2 spines on outer apex and 4 on inner margin, 7th joint nearly as long as 6th, slightly curved. No epipods were observed either on the 1st or 2nd peraeopods.

Remaining peraeopods not very slender, 5th and 6th joints with 2 small spines on inner margin, 7th joint with a tubercle on inner margin before the unguis.

The number and structure of the pleopods could not be determined as they appear to be completely absent, owing probably to an injury either before or after capture.

Uropods with a short, rather stout peduncle as long as the terminal projection of the telson, of the inner ramus only 3 joints remain, outer ramus 2-jointed.

Length : 2.75 mm.

Colour : Whitish, the eyes black.

Locality : Sea Point, near Cape Town. 14/12/13. (K.H.B.)
Low-tide. One specimen. (S.A.M. No. A2660.)

The specific name in allusion to the resemblance of the hand of the first gnathopod to the avicularia of the Polyzoa, a resemblance common to most species of the genus, but especially striking in the present species.

In general shape *A. avicularia* bears some likeness to *A. timaruvia*, Chilton, and *A. multicarinatus*, Whitelegge, but the 6th pleon segment and telson offer ready marks of distinction, not only from the latter two species, but also from all others in the genus.

FAMILY TANAIDAE.

GEN. TANAIS, Audouin and M. Edwards.

For references to the family and the genus see Barnard, Ann. S.A. Mus. vol. 10, pt. 7, p. 197.

TANAIS ANNECTENS, n. sp.

(Plate XXVII. C.)

Body smooth and glabrous except for a band of plumose setae on the 1st and 2nd pleon segments. Head with 1st peraeon segment a little broader than long, anterior margin with a very small median projection, eyes well developed, dark. Peraeon segments all equal. Pleon consisting of 5 segments, the 4th only half the length of the preceding ones, telson broader than long, apex rounded, entire, lateral margin with 1 seta.

First antenna equal to width of head, 1st joint longest, 2nd $\frac{1}{3}$ as long as 1st, with apical tuft of long plumose setae, 3rd slender, half the length of 1st, 4th minute, apically setose.

Second antenna equal to length of head, 1st joint with strong setae on outer apex, 2nd short, 3rd a little longer than 1st, with long apical plumose setae, 4th joint equal to 1st, slender, 5th minute, apically setose.

Upper lip short, broad at base, narrowing rapidly to bluntly rounded, setose apex, margins concave.

Lower lip, outer margin of outer lobes deeply indented, inner lobes longer, apices setose.

Mandibles, apex of left bilobed, one of the lobes distinctly 5-dentate, the other entire, apex of right simple, entire, molar prominent, denticulate.

First maxilla, apex with ca. 8 spines and a few subterminal setae, backwardly directed palp strongly developed, with 10 long apical setae.

Second maxilla small, triangular, apex rounded, with 1 seta.

Maxilliped, 2nd joint half as long again as broad, with long apical setae, 3rd and 4th subequal, both apically setose, 5th broader than long, inner margin setose, 6th ovate, equal to 3rd and 4th together, inner margin setose, inner plate reaching to middle of 4th joint, inner apex with 2 outstanding setae, epipod oval, apex produced into a narrow pointed process.

First pereopod (gnathopod) similar in both sexes, incisive edge on thumb of 6th joint with a strong triangular process near base and a less distinct one near apex, 7th joint evenly but not strongly curved.

Second pereopod, 2nd joint long and slender, 6th joint slender, with straight unguis.

Third to seventh pereopods similar to 2nd, but 2nd joint becomes gradually stouter, 5th joint slender in 3rd and 4th pereopods, stout in 5th, 6th, and 7th, 6th joint small, with minute unguis in 3rd and 4th pereopods, in 5th, 6th, and 7th stout, with strong hooked unguis, 4th joint in all these pereopods with 2 rows of stout spines, 6 in each, on lower apical surface.

All three pairs of pleopods, outer margin of smaller branch completely fringed with setae.

Uropods 4-jointed, 1st and 2nd joints subequal, 3rd a little shorter, 4th still shorter.

Length : 6 mm. ; *breadth* : 1.25 mm.

Colour : Greyish-white, head, pleon and median line on peraeon darker, slate-colour, eyes dark grey-black.

Locality : Dassen Island. April 1897. (R. M. Lightfoot.) ♂♂ and ♀♀ with ova. Buffel's Bay, False Bay. 28/9/13. (K.H.B.) 1 ♂. Low-tide. (S.A.M. Nos. A2550 and A2547.)

This species is intermediate between, and combines the characters of *T. cavolinii*, M. Edw., and *T. philetacrus*, Stebbing, whence the specific name. In the shape of the cephalic segment the present species is nearest *T. cavolinii*, which it also resembles in having several setae on the palp of the first maxilla and a complete fringe of setae on the smaller branch of the pleopods. On the other hand,

it resembles *T. philetaerus* in having 4-jointed uropods and non-denticulate ungues on the 5th, 6th, and 7th peraeopods.

FAMILY GNATHIIDAE.

GEN. GNATHIA, Leach.

For references to family and genus see Barnard, Ann. S.A. Mus. vol. 10, pt. 7, p. 200.

GNATHIA AFRICANA, Brnrd.

(Plate XXXVIII. E.)

1914. *Gnathia africana*, Barnard, Ann. S.A. Mus. vol. 10, pt. 7, p. 201, pl. XVII. B (σ and larva).

Since the description of the male and the larva was published, the female has been discovered.

Female. Anterior margin of head semicircular, entire. 2nd and 3rd peraeon segments short, 4th, 5th and 6th subequal in length, indistinctly separated, anterior margin of 4th, posterolateral angles of 5th and posterior margin of 6th pigmented and more strongly chitinized. Pleon equal to 6th peraeon segment. Telson narrower than in σ , 2 setae on apex and one on lateral margin, just beyond the middle.

First antenna as in σ , but 2nd joint of flagellum as long as 3rd joint of peduncle.

Second antenna as in σ , but 4th joint of peduncle proportionately longer, equal to 2nd and 3rd together.

Maxilliped. Second joint somewhat produced on inner apical angle, so that inner margin of 1st joint of palp is not free, palp rather shorter and stouter than in σ , outer margin decidedly more curved, due to 2nd joint being twice as broad as long, 4th joint more triangular than in σ , not incurved.

First peraeopod (gnathopod) composed apparently of 3 joints. First joint curved, with prominent spine on outer apical angle, 2nd joint half 1st and more slender, outer apical angle with an acute point and 2 setae, 3rd joint nearly as long as 2nd, 2 setae on apex and a row of very fine spinules on outer margin. Marsupial plate oval, about same length as gnathopod.

Rest of the peraeopods as in σ , but with minor differences; tubercles only on 4th joint, 5th joint with a strong pectinate spine and a simple seta arising together just beyond the middle of inner

margin, 6th joint with armature similar to that of ♂ but the spines all acute.

Uropods. Both rami extend a little beyond telsonic apex, inner longer than outer, both with long simple setae on outer and inner distal margins.

Length : 3 mm.

Colour : Whitish, the head, peraeon segments 1 and 2 and the strongly chitinized parts of 4, 5, and 6, and the pleon grey.

Locality : St. James, False Bay. 15/2/14. (K.H.B.) 2♂♂, 2♀♀ with embryos, and 4 larvae. Sea Point near Cape Town. 15/11/13. 3 larvae, and 26/2/14. 1♂ and 1 ovigerous ♀. (K.H.B.) (S.A.M. Nos. A2693, A2611, and A2717 respectively.)

The original ♂ and larvae were found on Holothurians, but both sexes have since been found at St. James living in great abundance in the tubes of a species of Serpulid worm encrusting the rocks near low-tide. The males are far more numerous than the females. They lie in the mouths of the tubes, which they just about fill up, with the head projecting.

FAMILY ANTHURIDAE.

1814. *Anthuridae*, Leach, Edinb. Encycl. vol. 7, pp. 387-433.
 1886. „ Norman and Stebbing, Tr. Zool. Soc. Lond. vol. 12, p. 119.
 1900. „ Stebbing in Willey's Zool. Res. vol. 5, p. 618 (Synonymy.)
 1905. „ Richardson, Bull. U.S. Nat. Mus. No. 54, p. 62.
 1910. „ Stebbing, Tr. Linn. Soc. Lond. Zool. vol. 14, pt. 1, p. 90. (References.)

GEN. CYATHURA, Norman & Stebbing.

1886. *Cyathura*, Norman & Stebbing, l.c. pp. 121, 124.
 1893. „ Stebbing, Hist. Crust. p. 331.
 1900. „ id. l.c. p. 619.
 1904. „ id. Spolia Zeylanica, vol. 2, pt. 5, p. 9.
 1905. „ Richardson, Bull. U.S. Nat. Mus. No. 54, p. 63.

CYATHURA ESTUARIA, n. sp.

(Plate XXVII. D.)

Body smooth, glabrous. Head as long as broad, half length of 1st peraeon segment, anterior margin excavate with median pro-

jection not extending beyond the antero-lateral angles, eyes oval, black. Peraeon with 1st segment longer than the others, segments 2-5 subequal and a little longer than head, segments 6 and 7 subequal and rather shorter than preceding segments, anterior margin of segments 3-5 (in the large specimen segments 4 and 5) with a small pit. Pleon segments 1-5 completely fused, without trace of sutures, equal in length to 7th peraeon segment. Telson with straight sides, tapering gradually to the bluntly rounded apex, margins setose, the apical setae being the longest.

First antenna as long as head, 1st joint stout, 2nd and 3rd slender, 3rd a little shorter than 2nd, flagellum as long as 3rd joint, 3-jointed, the 2nd joint by far the longest, 3rd apically setose.

Second antenna rather longer than head, 2nd joint stout and twisted, 3rd and 5th subequal, 4th shorter, flagellum apparently only 1-jointed, setose.

Upper lip triangular, the incision nearly in the median line.

Lower lip, lobes apically truncate, inner apical angle well marked, not setose.

Mandibles, cutting-plate with many fine backwardly directed denticulations, molar fairly prominent, palp strong, 1st joint short, 2nd and 3rd subequal and twice length of 1st, inner margins setulose, apex of 3rd with stronger setae.

First maxilla, apex with one strong spine and 5 smaller ones.

Second maxilla small, triangular, the subacute apex with 1 seta.

Maxilliped, 1st joint distinguishable in the large specimen but not in the smaller, 2nd joint longest, 3rd a little shorter, both margins setose, the inner setae being the stronger, 4th joint small, with 2 strong inwardly directed setae on apex, epipod small, rounded.

First peraeopod, 5th joint narrow, apex pointed and curving slightly outwards, with subapical setae, 6th joint narrow-oval, tapering distally, inner margin (palm) with 1 outwardly curving tubercular spine and setae in front of and behind this, 7th joint slender, reaching to apex of 5th joint.

Second and third peraeopods, 5th joint small, underriding 6th, without any external margin, 6th joint with 1 doubly denticulate spine on inner apex, 7th joint with inner margin denticulate.

Fourth to seventh peraeopods similar to 2nd and 3rd, but 5th joint has a short external margin, peraeopod 7 is longer than rest

and has the 2nd joint broader and both margins of 6th and 7th joints denticulate.

First pleopod with 5 hooked spines on inner apex of peduncle, operculate, covering the other pleopods, obovate, the rounded distal margin fringed with plumose setae.

Uropods, lower (inner) ramus as long as telson, 2nd joint as long as broad, margins entire, setose; upper (outer) ramus reaching just beyond apex of 1st joint of lower ramus, ovate, a little more than twice as long as broad, apex subacute, margins entire, setose.

Length: 27 mm. and 9 mm.; *breadth*: 3 mm. and 1 mm.

Colour: The large specimen in spirit, uniform dirty pink; the smaller ones (alive) whitish with brown mottlings on the head, peraeon, pleon, and uropods.

Locality: Buffalo River (East London), 2 miles above jetty (tidal). One nonovigerous ♀ (the large specimen referred to above). 18/12/98. s.s. "Pieter Faure"; Zwartkops River (Algoa Bay). Several immature specimens. May, 1913. (Mrs. Patterson.) (S.A.M. Nos. A68 and A2269.)

Two other species of this genus are known: *C. carinata* (Kröyer) from both sides of the N. Atlantic, and *C. pusilla*, Stebbing, 1904, from Ceylon. The present species comes very near to the former and differs only in the following respects: it is narrower in proportion to its length, 1:9 whereas Miss Richardson gives 1:7 for *C. carinata*; the 2nd joint of lower ramus of uropod is as broad as long, not broader than long; the apex of the 5th joint of 1st peraeopod and the tubercle on the palm of 6th joint are more prominent; and the lower lip is parallel-sided, not suddenly expanded at the distal half and the inner angles of the lobes are rectangular not rounded (cf. figure in Norman and Stebbing, pl. 27, fig. 3 lbi.).

C. pusilla is easily separated from both the other species in that it has the 6th peraeon segment *longer* than the 7th and is without eyes.

EXANTHURA, n. g.

Very near to *Cyathura*, but differing in having the flagella of 1st and 2nd antennae well developed. Maxilliped 4-jointed (including basal joint), mandible with obsolete molar and 3rd joint of palp shorter than 2nd, flagellum of 1st and 2nd antennae well developed, 1st peraeopod subchelate, other peraeopods ambulatory, pleon segments with distinct sutures, 1st pleopods opercular.

EXANTHURA MACRURA, n. sp.

(Plate XXVIII, A.)

Body narrow, smooth, glabrous. Head a little longer than broad, with small median projection, eyes oval, prominent. Peraeon segments flat dorsally, with a pit in the middle (not on the anterior margin) of segments 4-6, ventrally keeled, 1st segment a little longer than head, segments 2 and 3 subequal, a little longer than 1st, segments 4 and 5 subequal, segments 6 and 7 shorter, posterior segments wider than the anterior ones.

Pleon segments 1-5 as long as 6th peraeon segment, but broader than any of the peraeon segments, fused but the sutures distinct. Telson very long (5 mm. or nearly one-quarter the total length of the animal), equal to peraeon segments 5-7 together, rather spatulate, broader distally than basally, distal margin truncate, postero-lateral angles obtuse, with short plumose setae.

First antenna, 1st joint largest, with a large triangular recurved process on outer margin, 2nd and 3rd together equal to 1st, flagellum as long as peduncle, 9-jointed, 1st joint short.

Second antenna, 2nd joint largest, twisted and hollowed for the reception of 1st antenna, 3rd and 4th subequal, 5th nearly equal to 3rd and 4th together, flagellum a little longer than 5th peduncular joint, 6-jointed, 3rd-5th joints of peduncle and whole of flagellum sparsely setose.

Upper lip triangular, distal margin cleft.

Lower lip, lobes with a small point on inner apical angle.

Mandibles, cutting edge entire, cutting-plate with a feebly convex margin, not toothed but with a series of blunt tubercles, molar nearly obsolete, palp with 2nd joint half as long as 1st, 3rd subequal to 1st, setose.

First maxilla 6-toothed.

Second maxilla small, narrow, apex with 2 setules.

Maxilliped 4-jointed, 1st joint distinct, 2nd and 3rd stout, subequal, 4th rounded, apex with a few setules, epipod oval, a little more than half length of 2nd joint.

First peraeopod, inner apex of 2nd joint produced into an obtuse projection, 6th elongate and much produced backwards, palm short, with scattered setae, the basal half forming a rounded lobe, 7th joint reaching to middle of lobe on palm, unguis to middle of 5th joint, which is apically setose.

Second and third peraeopods, 2nd and 3rd joints subequal, 5th underriding 6th, which is parallel-sided with a short, stout spine on inner apex.

Fourth to seventh peraeopods similar to 2nd and 3rd, but 5th joint not underriding 6th, apex of 5th and 6th each with 2 spines, 7th not appreciably shorter or more slender than preceding ones.

First pleopod very large, 6 mm. long, opercular, covering the other pleopods, margins densely fringed with plumose setae.

The other pleopods small, 3 mm. long, lanceolate.

Uropods, inner ramus large, nearly as long as telson, increasing in width distally, 2nd joint almost as long as 1st, apex obliquely truncate, with short plumose setae, outer ramus reaching to outer distal angle of 2nd joint of inner ramus, lanceolate, twice as long as broad, inner margin straight, outer convex and rather angular, with plumose setae.

Length: 22 mm.; *breadth*: 1st peraeon segment 1.25 mm., 7th peraeon segment 2 mm.

Colour: Whitish with brown mottling on head and peraeon segments, a well-marked dark spot behind each of the pits on 4th-6th segments.

Locality: Sea Point near Cape Town. 12/1/14. (K.H.B.) 1 ♀. (S.A.M. No. A2667.)

Gen. ANTHELURA, Norman & Stebbing.

1886. *Anthelura*, Norman & Stebbing, Tr. Zool. Soc. Lond. vol. 12, pp. 121, 126.

1893. ,, Stebbing, Hist. Crust. p. 331.

1905. ,, Richardson, Bull. U.S. Nat. Mus. No. 54, p. 68.

ANTHELURA REMIPES, n. sp.

(Plate XXVIII. B.)

Body long and very narrow, smooth, glabrous. Head longer than broad, $\frac{2}{3}$ length of 1st peraeon segment, anterior margin rather deeply excavated on either side of the median projection, which scarcely reaches to the level of the antero-lateral angles, eyes absent.

Peraeon keeled ventrally, segments 1-3 and 7 subequal, segments 4 and 5 subequal and longer than preceding segments, segment 6 intermediate in length, segments 6 and 7 with a broad shallow impression on the posterior part.

Pleon segments 1-6 nearly as long as peraeon segment 7, fused, the sutures visible only at the sides, 5th segment a little longer than the others, telson thick and convex above, distal third narrowing

rapidly to the subacute apex, which bears two bunches of long setae, 4 in each, margins entire with fine scattered setules.

First antenna not quite as long as head, 1st joint stout, twice as long as broad, outer margin with long setae, 2nd shorter than 3rd, outer apex of 3rd with 2 long setae, flagellum $\frac{2}{3}$ length of 1st peduncular joint, 7-jointed, 1st joint very wide and short, appearing like a 4th joint of the peduncle, 2nd longest, rest decreasing gradually, apex setose.

Second antenna as long as head, 1st joint short, 2nd swollen and hollow on one side, 3rd and 4th subequal, $\frac{1}{3}$ length of 2nd, 5th a little longer, flagellum equal to 5th peduncular joint, 6-jointed, but only the 1st is really distinct, the rest minute and setose.

Upper lip triangular, cleft symmetrical, apices with small stout spines.

Lower lip, lobes broad, apically truncate, inner angles with 2 recurved spines and a few setules, rounded outer angles with a tuft of setae.

Mandibles, cutting-edge tridentate, cutting-plate with ca. 12 blunt teeth, molar prominent, palp rather slender, 1st joint $\frac{2}{3}$ length of 2nd, 3rd only $\frac{1}{3}$ length of 1st and very slender, with 3-4 apical spines.

First maxilla rather stout, apically bent, 1 strong and 5 smaller apical teeth.

Second maxilla very small, stout, triangular, with 2 apical setae.

Maxilliped, 1st joint distinct, 2nd short and broad, inner plate well developed, half the length of 2nd, apically rounded, with a few marginal setae, 3rd joint short, 4th nearly as long as 2nd, distal margin oblique, 5th small with 1 spine and 3 apical setae; there is very minute 6th joint with 3 apical setae, but it is doubtful if it is really separate from the 5th joint. Epipod subcircular, nearly reaching apex of 2nd joint.

First peraeopod stout, 2nd and 3rd joints subequal, 4th short, outer margin angular, 5th twice length of 4th, completely under-riding 6th, inner apex produced into a blunt lobe, inner margin of 5th with small square pellucid plates set closely together, but interrupted in places by long setae, on the apical lobe these plates are finely fimbriate at the edges, 6th joint elongate oval, tapering rapidly distally, palm straight, setose, 7th joint shorter than palm, bearing a stout unguis as long as itself and reaching to the apical lobe of 5th joint.

Second and third peraeopods, 2nd and 3rd joints subequal, 4th half as long, distally produced on outer margin, 5th under-riding 6th,

inner margin convex with 1 apical spine, 6th $\frac{3}{4}$ length of 3rd, only half as long again as broad, parallelogram-shaped, palm straight with 1 apical spine, 7th joint as long as palm, unguis short and stout, inner margins of 3rd-6th joints with long setae.

Fourth to sixth peraeopods more slender than the 2nd and 3rd peraeopods, 2nd and 3rd joints subequal, 4th and 5th subequal, $\frac{2}{3}$ length of 3rd, half as long again as broad, 5th with a large spine at base and another at apex, each spine bearing a cilium near its end, 6th joint nearly as long as 5th, but only half as wide, apex with 1 stout and several smaller, serrulate spines, 7th joint half the length of 6th, slender, unguis small, with a tuft of setae in place of the secondary unguis, inner margins of 3rd-6th joints with long setae.

Seventh peraeopod longer and more slender than the preceding peraeopods, 2nd joint a little longer than 3rd, 4th and 5th subequal, twice as long as broad, 6th as long as 5th, slender, 7th half length of 6th.

First and second pleopods with 4 hooked spines on inner apex of peduncle, 1st pleopod opercular, outer ramus ovate, inner margin straight, inner ramus $\frac{3}{4}$ length and $\frac{1}{2}$ width of outer; 2nd pleopod (♀) narrower, rami subequal, obscurely 2-jointed.

Uropods, inner ramus reaching to end of telson, both joints subequal, longer than broad, margins entire, inner apical margin of 1st joint setose, apex of 2nd joint with very long setae chiefly on outer distal margin; outer ramus transversely ovate, twice as broad as long, margins entire, setose.

Length: 30 mm.; *breadth*: 2 mm.

Colour: In spirit, dull grey-brown.

Locality: Lion's Head SE. $\frac{1}{2}$ E., distant 42 miles (off Cape Peninsula). 156 fathoms. 13/3/00. 1 nonovigerous ♀. s.s. "Pieter Faure." (S.A.M. No. A58.)

GEN. APANTHURA, Stebbing.

1900. *Apanthura*, Stebbing in Willey's Zool. Res. vol. 5. p. 621.

1910. ,, id. Tr. Linn. Soc. Lond. Zool. vol. 14, pt. 1, p. 93.

APANTHURA AFRICANA, n. sp.

(Plate XXVIII. C.)

Body very narrow in proportion to length. Head half length of 1st peraeon segment, longer than broad, eyes absent.

Peraeon segments 1 and 4-6 longest, subequal, 2, 3, and 7 also subequal, all segments ventrally keeled.

Pleon segments 1-5 equal to 7th peraeon segment, fused, the sutures distinct, telson ovate, nearly twice as long as broad, tapering to an acute apex with ca. 4 apical setae.

First antenna, 1st joint slender, not swollen, 2nd $\frac{1}{3}$ length of 1st, 3rd $\frac{1}{2}$ length of 1st, flagellum equal to 3rd peduncular joint, 1st joint very small, 2nd longest, 3rd minute, setose.

Second antenna, 5th joint slightly longer than 3rd and 4th, which are subequal, flagellum equal to 4th joint, obscurely 3-jointed, apex setose.

Upper lip symmetrically cleft, apices spinulose.

Lower lip, lobes not very broad, outer margin setose, apices with a small point.

Mandibles, cutting-edge indistinctly bidentate, cutting-plate 5-dentate, molar fairly prominent, palp with 2nd joint longer than 1st, 3rd shorter than 1st, apex with 3-4 setae.

First maxilla normal. Second maxilla minute with 1 apical seta.

Maxilliped, 1st joint indistinguishable, 3rd short, 4th a little shorter than 2nd, 5th small with 3-4 apical setae, no inner plate visible, epipod small, oval.

First peraeopod, 5th joint apically produced, setose on inner margin, 6th ovate, palm with distal half abruptly excavate, setose, 7th joint short and stout, reaching half-way along palm, unguis short and very stout.

Second and third peraeopods, 2nd joint longest, 5th completely underriding 6th, its apex truncate, setose, 6th stout, inner margin setose and beset with regular denticulations, which under a high power are seen to be fimbriate, 1 apical serrulate and ciliate spine.

Fourth to sixth peraeopods similar, but 5th joint not completely underriding 6th, with an apical spine.

Seventh peraeopods, both incomplete in the single specimen.

First pleopod with 6 hooked spines on inner apex of peduncle.

Uropods, inner ramus a little longer than telson, narrow, 2nd joint shorter than 1st, half as long again as broad, apex subacute, outer margin setulose; outer ramus a little longer than 1st joint of inner ramus, obliquely ovate, inner margin setose, distally emarginate.

Length: 17 mm.; *breadth*: 1.5 mm.

Colour: In spirit, dirty pink.

Locality : Paternoster Point SE $\frac{3}{4}$ S., distant 9 miles (off Saldanha Bay). 80 fathoms. 17/3/02. 1 nonovigerous ♀. ss. "Pieter Faure." (S.A.M. No. A63.)

APANTHURA DUBIA, n. sp.

(Plate XXVIII. D.)

Body very narrow. Head two-thirds length of 1st peraeon segment, eyes small, round, black. Peraeon segments decreasing slightly in length posteriorly, the 7th shortest. Pleon segments 1-5 equal to 7th peraeon segment, fused but with sutures distinct at least at the sides. Telson twice as long as broad, ovate, apex subacute, setose.

First antenna, 1st joint not twice length of 2nd, flagellum 3-jointed.

Second antenna, 5th joint a little longer than 3rd or 4th, which are subequal, flagellum 1-jointed setose, possibly 2-jointed but suture hidden by setae.

Mouth parts as in *A. africana*, but epipod of maxillipeds larger.

First peraeopod, 5th joint not apically produced, 6th joint narrow ovate, palm straight, setose, with a small subacute lobe at base.

Second and third peraeopods, 5th joint completely underriding 6th, apical spine on 6th joint strong, inner margin apparently without the fimbriate denticulations seen in *A. africana*.

Seventh peraeopod more slender than preceding peraeopods, 5th joint not underriding 6th, inner margin of 6th joint spinulose, both margins of 7th joint spinulose.

First pleopod, inner angle of peduncle with 3 hooked spines.

Uropods, lower ramus a little longer than telson, 2nd joint nearly as long as 1st, twice as long as broad, apex rounded, apex and outer margin setose; upper ramus a little longer than 1st joint of lower ramus, apically indented, all margins setose.

Length : 10 mm. ; *breadth* : 1 mm.

Colour : Yellowish-white, head and peraeon segments with a triangular group of more or less confluent grey spots, on the head and first three segments the base of the triangle is on the anterior margin, but on the four posterior segments on the posterior margin; eyes black.

Locality : St. James, False Bay. (Dr. W. F. Purcell.) April, 1901. 2 ♀♀. Low-tide under stones. (S.A.M. No. 8826.)

This may possibly be identical with *Anthura laevigata*, Stimpson, although it does not agree in having the "first three pairs of legs

stout, with equal, sub-cheliform hands." Nor are the "eyes red." The description of the abdomen, however, agrees well, and the "few crimson spots on the extremities" of the body might be construed in harmony with the colouration of the present species. Hilgendorf (Monatsber. Berl. Ak. Wiss. 1878, p. 847), refers Stimpson's *A. laevigata* and *A. punctata* to the genus *Paranthura*.

It is also very near to *Apanthura sandalensis*, Stebbing (Willey's Zool. Res. pt. 5, p. 621, pl. 65 A.), from the Loyalty Islands. In fact the only difference is that *A. dubia* has the inner apex of 5th joint of first peraeopod (gnathopod) bluntly truncated and a pointed lobe at base of the palm of 6th joint, whereas in *A. sandalensis* the apex of 5th joint is pointed and the palm is plain. In *A. dubia* the lateral margins of the telson are proximately slightly concave, in *A. sandalensis* straight; but this is hardly a point of importance.

MESANTHURA, n. g.

Very near *Apanthura* but distinguished by the complete fusion of the pleon segments without any trace of segmentation, and the mandibular palp having the 3rd joint longer than 1st.

Maxilliped 5-jointed (including basal joint).

Peraeopods 4-7 with 5th joint underriding 6th as in anterior peraeopods, but not to such an extent.

Flagellum of 1st antenna in ♂ enlarged, multiarticulate, densely setose, in ♀ rudimentary.

Flagellum of 2nd antenna rudimentary in both sexes.

MESANTHURA CATENULA (Stimpson).

(Plate XXIX. A.)

1855. *Anthura catenula*, Stimpson, Proc. Ac. Nat. Sci. Philad. vol. 7, p. 393.

1887. ,, ,, Beddard, Challenger Rep. vol. 17, p. 143 (note).

1910. ,, ,, Stebbing, Gen. Cat. S.A. Crust. p. 420.

Body smooth, glabrous. Head $\frac{3}{4}$ length of 1st peraeon segment, anterior margin excavate, with the median process not extending beyond the antero-lateral angles; eyes oval, black. Peraeon segments subequal. Pleon segments 1-5 completely fused in both sexes, the only indication of the composite nature being very faint lines of pigment, no trace of any grooves. Telson with slightly sinuous sides, apex subacute, rounded, setose.

First antenna, 1st joint longest, 3rd shorter than 2nd in ♂, 2nd shorter than 3rd in ♀, flagellum in ♂ enlarged, reaching to posterior margin of head, twice as long as peduncle, composed of 1 basal joint and ca. 12 coalesced joints densely setose, in ♀ as long as 2nd and 3rd peduncular joints together, apparently only 2-jointed, apex setose. Beddard incidentally gives the number of flagellar joints, in specimens which he assigns to this species, as 12-14 in ♂ and 3-4 in ♀.

Second antenna longer than 1st antenna in ♀, 1st joint smaller than 2nd, which is not strongly twisted or hollowed, 3rd and 4th subequal, 5th equal to 3rd and 4th together, flagellum 3 jointed, about equal to 5th peduncular joint, in ♀ 1st joint largest, 2nd and 3rd setose, in ♂ 1st strongly setose, 2nd longest, without setae, 3rd short, with 2-3 apical setae.

Upper lip symmetrically cleft.

Lower lip, lobes with a small point on inner apical angle, outer margin setose.

Mandibles, cutting-edge apparently entire, cutting-plate with 6 denticulations, molar stronger in left, almost obsolete in right, palp strong, 1st joint short, 3rd joint a little more than half length of 2nd, setose.

First maxilla with 1 large and 5 smaller apical teeth.

Second maxilla conical, apex acute.

Maxilliped consisting of 5 joints, 1st small but distinct, 2nd longest, 3rd shortest, 4th nearly as long as 2nd, 5th equal to 3rd, apically rounded, suture between 4th and 5th oblique.

First peraeopod, 3rd joint equal to 6th, 5th triangular, its apex prominent, truncate, setose, 6th joint large, oval, palm distally emarginate, the proximal half setose, 7th joint fitting into the emargination of palm, unguis as long as 7th joint and slightly overlapping apex of 5th.

Second and third peraeopods, 3rd joint longer than 2nd, 5th underriding 6th, which has a stout spine on inner apex and fine spinules along the inner margin.

Fourth to seventh peraeopods, rather longer than the anterior peraeopods, 4th joint longer and more slender, 5th triangular, with 1 spine on inner apex, to some extent underriding 6th.

First pleopod opercular, inner apex of peduncle with 6 hooked setae, covering ramus obovate, distal margin rounded, strongly setose, concealed ramus narrow tapering, not as long as and basally only half the width of covering ramus.

Second pleopod ♂, rami equal, apically rounded, male stylet a little longer than rami, slightly thickened at apex.

Uropods, inner ramus as long as telson, 2nd joint longer than broad, apex rounded, setose, inner distal margin serrulate, outer ramus reaching to just beyond apex of 1st joint of inner ramus, apex strongly indented, outer margin serrulate and densely setose.

Length : Up to 20 mm.

Colour : The very distinctive markings have been well described by Stimpson. The pleon has a black band on its posterior half ; the 6th segment is white, telson black, outer ramus of uropods black with white apex, inner ramus with both joints black at base, white at apex.

Locality : Kalk Bay and St. James, False Bay (R. M. Lightfoot, Dr. W. F. Purcell, K.H.B.) ; Sea Point, near Cape Town. 26/2/14. (K.H.B.) 2 juv. (S.A.M. Nos. 8825, A250, A2106 and A2719.)

Stimpson's specimens were from Simon's Bay in False Bay.

Gen. LEPTANTHURA, G. O. Sars.

1897. *Leptanthura*, G. O. Sars, Crust. Norway, vol. 2, p. 47.

1910. ,, Hodgson, Nat. Ant. Exp. vol. 5, p. 8.

1911. ,, Richardson, Bull. Mus. d'Hist. Nat. 1911, No. 7,
p. 522.

LEPTANTHURA FAUREI, n. sp.

(Plate XXIX. B.)

Body slightly punctate, otherwise smooth, glabrous. Head a little broader than long, $\frac{2}{3}$ length of 1st peraeon segment, with small median rostrum and rounded antero-lateral angles, eyes absent.

Peraeon segments ventrally keeled, the anterior ones more strongly so than the posterior ones, 2nd and 3rd segments subequal, a little longer than 1st, 4th, 5th, and 6th subequal and longer than 3rd, 7th equal to 1st.

Pleon segments united in both sexes, with distinct sutures, 5th segment twice length of any of the preceding, segments 1-5 together equal to 7th peraeon segment. Telson broad, apex rounded with small median notch, in which are situated 4 setae.

First antenna reaching to middle of 1st peraeon segment in ♂, in ♀ to posterior margin of head, 1st joint stout, 2nd and 3rd subequal in ♀, 3rd a little longer than 2nd in ♂, flagellum in ♂ 21-jointed, twice as long as peduncle, first 2 joints triangular, remainder densely setose, in ♀ 3-jointed, 1st joint much the longest, apex setose.

Second antenna, 3rd and 5th joints subequal, 4th a little shorter, flagellum equal to last peduncular joint, obscurely 3-jointed, flagellum and all peduncular joints except 1st apically setose.

Upper lip tapering to the blunt apex, sides concave, distal one-quarter abruptly narrowed.

Lower lip with the lobes long and narrow, tapering to fine acute apices, outer margins rather densely setose.

Mandibles elongate, triangular, with acute piercing apex, palp stout, 2nd joint thrice as long as 1st, 3rd shorter than 1st, with 2 apical pectinate setae.

First maxilla long, very narrow, apex serrulate on inner margin.

Maxilliped, 1st joint indistinguishable, 2nd $3\frac{1}{2}$ times as long as 3rd joint which is obliquely bevelled off on the outer margin to the acute, setiferous apex, 4th joint barely distinguishable, inner apex of 2nd joint with 4 long setae.

First peraeopod, 2nd and 3rd joints subequal, $2\frac{1}{2}$ times as long as wide, both margins of 3rd setose, 4th short but wide, basal margin semicircular, 5th joint with 6 serrate spines and long setae on inner margin, 6th joint oval, produced at base of palm into a strong tubercle bearing a serrulate spine on its apex, palm slightly convex, with serrulate spines and short apically recurved setae, 7th joint stout, abutting on tubercle at base of palm, inner margin with regularly spaced groups of short stout setae, unguis short; tubercle at base of palm not nearly so prominent in ♀.

Second and third peraeopods similar to first, but not quite so stout, 4th joint not so broad in comparison with its length, inner margin of 5th joint with only 2 spines, no tubercle at base of palm of 6th joint, outer margin of 6th strongly setose, 7th joint proportionately longer.

Fourth to seventh peraeopods, 2nd and 3rd joints subequal, 3rd setose on both margins, 4th joint about half the length of 3rd, inner margin and outer apex setose, 5th underriding 6th, inner margin with 2 spines and long setae, 6th equal to 4th and 5th together, inner margin with 4 spines and setae. The spines on the 5th and 6th joints are of the ciliate type described by Norman & Stebbing (Tr. Zool. Soc. Lond. vol. 12, p. 131) in *Paranthura tenuis*, G. O. Sars (= *Leptanthura tenuis*, G. O. Sars).

First pleopod with 4 hooked setae on inner apex of peduncle, outer ramus covering inner ramus and the other pleopods, ovate, inner ramus nearly as long as outer and half as wide, both rami apically setose.

Second pleopod, rami subequal, apices rounded, with indications

of a suture about $\frac{2}{3}$ from base, male stylet arising half-way along inner margin, slender, nearly straight, apex reaching to end of ramus, incurved.

Uropods, inner ramus extending a little beyond telsonic apex, 2nd joint longer than broad, apex bluntly acute, margins not crenulate, outer margin and base of inner setose; outer ramus extending a little beyond apex of 1st joint of inner ramus, as broad as long, apically indented, margins neither crenulate nor densely setose, the two rami arching over telson and meeting in the middle line.

Length: ♂ 26 mm., ovigerous ♀ 19 mm.; *breadth*: ♂ 2 mm., ♀ 1.5 mm.

Colour: In spirit, uniform pinkish.

Locality: 33° 52' S. 25° 50' E. (Algoa Bay). 25 fathoms. 8/12/98. 1 ♀; 33° 3' S. 27° 57' E. (off East London). 32 fathoms. 28/12/98. 2 ♂♂, 4 ♀♀; Umhlangakulu River mouth NW. by W., distant 7 miles. 50 fathoms. 14/3/01. 1 ♂, 1 ovigerous ♀, and 5 immature; Cove Rock N. $\frac{3}{4}$ E., distant 5 miles. 43 fathoms. 2/8/01. 2 ♂♂, 1 ♀, and 3 immature; Keiskamma Point NE. by E., distant 5 miles. 33 fathoms. 27/8/01. 1 ♀. s.s. "Pieter Faure." (S.A.M. Nos. A64, A60, A61, A57, and A62 respectively.)

Named after the Cape Government trawler which collected the specimens.

The only other species of the genus are: *L. tenuis* (G. O. Sars), 1872 (=the *Paranthura tenuis* of Norman & Stebbing), *L. glacialis*, Hodgson, 1910, and *L. truncata*, Richardson, 1911.

GEN. PARANTHURA, Bate & Westwood.

1866. *Paranthura*, Bate & Westwood, Brit. Sessile-eyed Crust. vol. 2, p. 163.
1870. ,, Dohrn, Unters. über Bau u. Entwick. d. Arthrop. p. 91.
1886. ,, Norman & Stebbing, Tr. Zool. Soc. Lond. vol. 12, pp. 122, 129.
1886. ,, Beddard, Chall. Rep. vol. 17, p. 143.
1893. ,, Stebbing, Hist. Crust. p. 332.
1900. ,, id. in Willey's Zool. Res. v. p. 622.
1901. ,, Whitelegge, Sci. Res. "Thetis," p. 216.
1905. ,, Richardson, Bull. U.S. Nat. Mus. No. 54, pp. 63, 75.
1910. ,, id. Proc. U.S. Nat. Mus. vol. 37, p. 77.

PARANTHURA PUNCTATA (Stimpson).

(Plate XXIX. C.)

1855. *Anthura punctata*, Stimpson, Proc. Ac. Nat. Sci. Philad. vol. 7, p. 392.
 1878. *Paranthura* ,, Hilgendorf. Monatsber. Berl. Ak. Wiss. 1878, p. 847.
 1910 *Anthura* ,, Stebbing, Gen. Cat. S.A. Crust. p. 419.

Body smooth, glabrous, narrower in front than behind. Head as broad as long in ♀ (a little longer than broad in other specimens, which may be young ♂♂), $\frac{2}{3}$ length of 1st peraeon segment, eyes large, round.

Peraeon keeled ventrally, 1st segment longer than either 2nd or 3rd, which are subequal, 4th and 5th subequal, longer than 1st, 6th equal to 2nd, 7th half the length of 6th.

Pleon segments 1-5 equal to 7th peraeon segment, fused, with distinct sutures. Telson gently tapering to subacute, densely setose, apex.

First antenna as long as head, 1st joint $2\frac{1}{2}$ times as long as broad, not swollen, 3rd joint a little longer than 2nd, flagellum as long as peduncle, 6-jointed, all the joints apically setose.

Second antenna longer than head, 3rd and 4th joints subequal, 5th a little longer, flagellum equal to 5th peduncular joint, consisting of 1 stout setose joint and 1 or 2 minute, obscure, terminal joints concealed in setae.

Upper lip tapering, distal quarter suddenly narrowed, apex blunt.

Lower lip, apices of the lobes pointed, entire, outer distal margin setose.

Mandibles slender, palp strong, 1st joint shortest, 3rd $\frac{3}{4}$ length of 2nd, with apical and marginal spines, inner apex of 2nd with 3 outstanding setae.

First maxilla normal.

Maxilliped, 1st joint indistinct, 2nd not more than 4 times as long as broad, apex without setae, 3rd joint almost as long as 2nd, apex pointed, setose, a very minute setiferous 4th joint, epipod small, oval.

First peraeopod, 2nd and 3rd joints subequal, basal margin of 4th semicircular, outer apex acute, setose, 6th joint oval with prominent acute tubercle, without spine at base of palm, palm slightly convex, setiferous, without spines, 7th joint rather slender, without groups of setae on inner margin.

Second and third peraeopods, 4th joint short, nearly twice as

broad as long, produced externally, 6th joint elongate, oval, palm straight with 6 strong spines and a few setules.

Fourth to sixth pereopods, 5th joint not underriding 6th, inner apex produced into a small lobe, inner margin of 6th with 2 spines near base and 1 at apex.

Seventh pereopod, 5th joint not apically produced, inner margin with 4 spines, increasing in size distally, 6th joint with 3 spines on inner margin and 1 at apex.

First pleopod with 4 hooked setae on inner apex of peduncle, inner ramus very narrow, only $\frac{1}{6}$ width of outer ramus, which conceals both inner ramus and the other pleopods.

Uropods, inner ramus a little longer than telson, 2nd joint shorter and narrower than 1st joint, apex rounded, apex and outer margin setose; outer ramus scarcely broader than 1st joint of inner ramus, lanceolate, margins feebly crenulate, setose.

Length: ♂ 16 mm., ♀ with embryos 13 mm.; *breadth*: ♂ 1.25 mm., ♀ 1 mm.

Colour: In spirit, uniform whitish or dull pinkish, eyes dark red.

Locality: Umblangakulu River mouth NW. by W., distant 7 miles. 50 fathoms. 14/3/01. 1 immature; Cape Morgan N. $\frac{1}{2}$ W., distant 10 miles. 77 fathoms. 26/7/01. 1 immature ♂; Cove Rock NW. $\frac{3}{4}$ W., distant 13 miles. 80 fathoms. 30/7/01. 1 ♀ with embryos. s.s. "Pieter Faure." (S.A.M. Nos. A2555, A59, and A56 respectively.)

I should not have ventured to assign the above specimens to Stimpson's *A. punctata*, had not specimens been obtained from Table Bay (Sea Point, near Cape Town. 15/11/13. (K.H.B.) 3 immature. Low-tide. S.A.M. No. A2612), which, while agreeing structurally with the above specimens, answer very closely to Stimpson's description of the colour of the species in question. These Sea Point specimens are whitish, with minute black punctations, causing the upper surface to appear grey, with the eyes black.

The only points in which they differ from the above description are: the flagellum of the first antenna has only 4 joints and the 1st peduncular joint is stouter, not more than twice as long as broad; the mandibles also are stouter, the trunk not so pointed and the palp shorter, the 3rd joint not more than half the length of the 2nd joint, with fewer setae.

These differences between the littoral and deeper water specimens may well be ascribed to habitat, and consequently both may be identified with Stimpson's species; at any rate until specimens are obtained from his locality (Simon's Bay in False Bay).

FAMILY EURYDICIDAE.

1905. *Eurydicidae*, Stebbing in Herdman's Ceylon Pearl Fish.
Suppl. Rep. 23, p. 10.
1908. ,, id. S.A. Crust. pt. 4, p. 45.

GEN. EURYDICE, Leach.

1815. *Eurydice*, Leach, Tr. Linn. Soc. Lond. vol. 11, p. 370.
1820. ,, Hansen, Vidensk. Selsk. Skr. ser. 6, vol. 5, p. 362.
1905. ,, id. Journ. Linn. Soc. Lond. vol. 29, pp. 340, 356.
1905. ,, Richardson, Bull. U.S. Nat. Mus. No. 54, p. 123.
1910. ,, Stebbing, Tr. Linn. Soc. Lond. Zool. vol. 14, pt. 1,
p. 95.

EURYDICE LONGICORNIS (Studer).

1883. *Cirolana longicornis*, Studer, Abh. K. Ak. Wiss. Berlin, 1882,
p. 28, pl. 2, figs. 15 a-c.
1890. *Eurydice* ,, Hansen, Vidensk. Selsk. Skr. ser. 6,
vol. 5, p. 375.
1910. ,, ,, Stebbing, Gen. Cat. S.A. Crust. p. 421.

Since this species is only known from Studer's brief, yet for purposes of identification quite sufficient, description, the details of the appendages may here be given.

First antenna with 5-jointed flagellum, the 1st joint much the longest, equal to the 1st peduncular joint.

Second antenna with 4-jointed peduncle, Studer having evidently overlooked the short 1st joint, 4th joint equal to 2nd and 3rd together, flagellum ca. 24-jointed.

Upper lip transverse, twice as broad as long, clypeus triangular with a projecting point.

Mandible as figured by Hansen for the other species of the genus, palp with 2nd joint $2\frac{1}{2}$ times length of 1st, 3rd joint a little shorter than 1st, 2nd and 3rd joints setose.

First and second maxillae and maxilliped as figured by Hansen.

First peraeopod with 3rd and 4th joints strongly produced externally, 4th joint underriding 5th, inner margin with ca. 8 stout, blunt spines, inner margin of 6th joint with 6 spines.

Seventh peraeopod, inner margin of 3rd joint with 5 marginal and 3 submarginal groups of 3 spines each, inner apex with 6 spines, outer apex with 3-4 spines, 4th joint with 3 marginal and 3 submarginal groups of 5 spines each, inner apex with ca. 9 spines, outer

margin with 2, outer apex with 3 spines, 5th joint with 2 groups of ca. 9 spines each (not divided into marginal and submarginal groups), inner apex with 4 spines, outer margin with 2, outer apex with 4 spines, 6th joint with 2 groups of 5-6 spines each, inner apex with 4, outer apex with 1 spine, unguis strong, a stout seta in place of secondary unguis.

Male appendages on 7th peraeon segment close together, short, very stout, almost obovate, apices rounded.

First to third pleopods with 4 hooked setae on inner apex of peduncle. Male stylet on 2nd pleopod arising half-way along margin of ramus, extending a little beyond apex of ramus, apex slightly enlarged with its inner margin setulose and a minute terminal point (see Hansen, 1890, l.c. pl. 6, figs. 2*g* and 3*h*.).

Uropods, outer and inner apices of peduncle each with 1 spine, inner ramus rather longer than telson, very broad, outer ramus rather shorter, inner distal margins of both rami with long plumose setae.

Telson with posterior margin denticulate, one plumose seta springing from each indentation, apex with 6 spines in addition.

Epimera with postero-inferior angles acute, slightly produced, the posterior margin concave.

Locality: Salt River near Cape Town, in brackish water. August, 1896. (R. M. Lightfoot.) ♂♂ and ♀♀ with embryos. (S.A.M. No. A265.)

GEN. CIROLANA, Leach.

1818. *Cirolana*, Leach, Dict. Sci. Nat. vol. 12, p. 347.
1905. ,, Stebbing in Herdman's Ceylon Pearl Fish. Suppl. Rep. 23, p. 11. (References.)
1910. ,, Thielemann, Abh. Ak. Wiss. Munich, II. Suppl. Bd., 3. Abh, p. 8.
1910. ,, Richardson, Wash. Bur. Fish. Doc. 736, p. 4.

CIROLANA VICINA, n. sp.

(Plate XXX. B.)

Body minutely granular. Head with minute rostrum, not separating the first antennae. Frontal lamina pentagonal, longer than broad. Posterior margins of peraeon segments scarcely or not at all denticulate. Posterior margins of pleon segments minutely denticulate. Fifth pleon segment without free lateral margins. Telson triangular, sides straight, apex subacute, with plumose setae and 13-14 spines.

First antenna reaching a little beyond end of peduncle of 2nd antenna, flagellum 13-jointed.

Second antenna reaching to posterior margin of 5th pereaeon segment, flagellum 34-jointed.

First pereaeopod, 3rd joint with 1 spine and 2 setae on outer apex, 4th joint with 5 blunt spines on inner margin.

Second pereaeopod, 3rd joint with 2 spines and 2 setae on outer apex, 2 blunt spines on inner apex, 4th joint not produced externally, outer apex with 2 spines, inner margin with 4 large blunt spines near base, 3 at apex and 3 smaller ones between these two groups.

The other pereaeopods slender. Seventh pereaeopod, 2nd joint not expanded, oblong, inner margin slightly convex.

Male stilet on 2nd pleopod slender, a little longer than ramus, apex acute.

Uropods similar to those figured by Hansen for *C. cranchii* young ♀ (1890 Cirolanidae, pl. 3, fig. 3i), but apex of inner ramus is sub-bifid, inner margin with 10 spines, outer margin with 3 spines near apex, both margins with plumose setae; outer ramus apically sub-bifid, inner margin with 5 spines, outer with 10, both margins with plumose setae.

Length: 13 mm.; *breadth*: 3.75 mm.

Colour: Whitish, tinged on back with grey, caused by numerous minute stellate specks.

Locality: St. James, False Bay. April, 1901 (Dr. W. F. Purcell), and 29/4/12 (K.H.B.). 2 ♂♂ under stones at low-tide. (S.A.M. Nos. 9856 and A2560.)

This species is intermediate between *C. parva*, Hansen, and *C. cranchii*, Leach. The former has been found in the West Indies, East Indies, Ceylon, and Red Sea; the latter is a European form, but under the name of "*Nelocira swainsoni*" has been recorded from Senegambia by Miers (Ann. Mag. Nat. Hist. (5) 8, p. 204, 1881).

The relationships between the three species may be best seen from the following table:—

	<i>C. parva.</i>	<i>C. cranchii.</i>	<i>C. vicina.</i>
Frontal lamina	hexagonal	pentagonal	pentagonal
Pereaeopods	slender	stout	slender
Fourth joint of the 2nd and 3rd pereaeopods...	not produced	produced	not produced
Apices of the uropods	bifid	acute	sub-bifid.
Number of spines on telsonic apex	8	10-12	13-14.
Size	7-8 mm.	15 mm.	13 mm.

CIROLANA PARVA, Hansen.

1890. *Cirolana parva*, Hansen, Vidensk. Selsk. Skr. ser. 6, vol. 3,
pp. 321, 340, pl. 2, figs. 6-6b, pl. 3,
figs. 1-1d.
1901. ,, ,, Richardson, Proc. U.S. Nat. Mus. vol. 23,
p. 514.
1902. ,, ,, Moore, Bull. U.S. Fish. Comm. vol. 20,
pt. 2, p. 167, pl. 8, figs. 6-8.
1905. ,, ,, Stebbing in Herdman's Ceylon Pearl Fish.
Suppl. Rep. 23, p. 12.
1905. ,, ,, Richardson, Bull. U.S. Nat. Mus. No. 54,
p. 111, figs. 93-95.
1910. ,, ,, Stebbing, Journ. Linn. Soc. Lond. Zool.
vol. 31, p. 217.

Length: 5 mm.; *breadth*: 2 mm.

Colour: Yellowish-grey.

Locality: Mozambique (Conducia Bay). 15/11/12. (K.H.B.)
1 ovigerous ♀ at low-tide. (S.A.M. No. A2216.)

Geogr. Distribution: West Indies and Samoa (Hansen); Florida
and Gulf of Mexico 25 fathoms (Richardson); Porto Rico (Moore);
Ceylon 8-11 fathoms (Stebbing); Red Sea (Stebbing).

CIROLANA UNDULATA, n. sp.

(Plate XXX. A.)

Body smooth, nearly three times as long as broad. Head with
minute rostrum, not separating the first antennae.

Frontal lamina quadrate, a little longer than broad, the free
anterior margin longer than posterior margin, which is joined to
the clypeus.

Peraeon with posterior margin of all the segments finely crimped,
the crimping strongest at the sides and on the posterior segments.
Pleon with posterior margins of first 5 segments denticulate, though
only faintly so on the first segment. The fifth segment without
free lateral margins. Telson longer than broad, triangular, sides
straight, apex subacute with 2 short blunt spines close together,
flanked on either side by 6 stout spines. The interstices between
the spines with short plumose setae, scarcely longer than the
spines. Surface with a median carina which is grooved almost to
the base, lateral margin anterior to the spines with 5 rugae running
inwards towards base of telson, where they divide irregularly.

First antenna reaching end of peduncle of second antenna,

2nd joint longer than 1st, not subequal as in *C. sulcata*, Hansen. Flagellum not quite as long as peduncle, 12-jointed.

Second antenna reaching posterior margin of third peraeon segment, flagellum longer than peduncle, 25-jointed.

Upper lip, distal margin strongly emarginate, setose.

Mandibles, maxillae and maxillipeds normal.

First peraeopod, inner apex of 3rd joint with 1 blunt tubercle, outer apex of 4th joint with 2 small spines and inner margin with 8 blunt tubercles, inner margin of 6th joint with 4 low rounded bosses and small spines between them.

Second peraeopod, inner apex of 3rd joint with 3 blunt tubercles, outer apex with 2 strong spines, outer apex of 4th joint with 1 strong spine and inner margin with 10 blunt tubercles, inner margin of 6th joint smooth with 4 small spines.

Fourth to seventh peraeopods, as in *C. sulcata*, second joints not enlarged nor furnished with natatory setae.

Uropods, both branches a little longer than telson, inner angle of peduncle extending half-way along inner branch, inner branch with inner margin furnished with 11 short spines with short plumose setae between them, apex subacute not bifid, the outer margin at the apex very slightly emarginate, outer ramus with 3 short spines on inner distal margin and 2 on the outer, apex subacute, slightly bifid.

Length : 15 mm. ; *breadth* : 6 mm.

Colour : Whitish, with grey stellate specks.

Locality : Sea Point, near Cape Town. 15/11/13. (K.H.B.) 5 ♀ ♀ with embryos and 3 very young specimens just hatched. Low-tide, beneath stones and encrusting algae. (S.A.M. No. A2614.) Some specimens taken out of crevices in an old piece of iron wreckage were completely rust-red in colour.

This species at first sight resembles *C. sulcata*, Hansen, but is abundantly distinguished by the following characters: the ornamentation of the peraeon and telson, the marginal armature of the latter, the frontal lamina, the number of antennal joints, the number of tubercles on the anterior peraeopods, and the uropods. The specific name refers to the undulate appearance of the margins of the telson.

CIROLANA VENUSTICAUDA, Stebbing, var. *SIMPLEX*, n.

(Plate XXXVII. F.)

Differs from the typical form in the following particulars: smaller size; the denticulations on the posterior margin of 6th

peraeon segment much weaker, almost obsolete in some cases; those on posterior margin of 7th peraeon segments and 2nd, 3rd, 4th, and 5th pleon segments also weaker; the tubercles at base of telson and along the margins absent; the median carina simple, without the basal tooth, and not followed by any tubercles; the telson is longer than broad, apex more obtuse, no spines or setae along the margins and only 10 spines on the apex; outer distal angle of inner uropod rounded, the distal margin consequently more convex.

The more marked of the above differences can be recognized in the young of the two forms. Specimens of *venusticauda* taken from the brood pouch already show 20 spines round the end of the telson, whereas those of the variety show only 7 or 8.

The distribution seems to point to this being a local variety of the more ornate typical form. The former has not yet been found on the west coast of the Cape Peninsula. Stebbing recorded the typical form from Somerset West in False Bay, as well as from Table Bay. These "Somerset West" specimens I have not myself seen; but it is not likely that the above-mentioned differences were overlooked, nor is one justified in supposing that the "Somerset West" specimens had been wrongly labelled. However, all efforts to discover (at least by shore-collecting between tide-marks) the typical form in False Bay, or the variety in Table Bay, have so far failed. The two forms seem distinctly confined to their respective sides of the Cape Peninsula.

Length: ♂ 11 mm., ♀ 10 mm.; *breadth*: ♂ 4 mm., ♀ 3·5 mm.

Colour: Grey, mottled.

Locality: St. James and Kalk Bay, False Bay (Dr. W. F. Purcell); Plettenberg Bay, 3/7/02, s.s. "Pieter Faure"; St. James, 15/2/14 (K.H.B.), ♂ ♂, ♀ ♀, and juv. (S.A.M. Nos. 8830, 150055, A50, and A2685 respectively.)

PONTOGELOIDES, n. g.

Fifth pleon segment with free margins; bases of first and second antennae completely separated, flagella subequal, not long; epistome projecting; mandibular palp with only two joints, the second very long; second maxilla normal, the middle plate not narrower than the outer; maxillipeds 7-jointed, inner plate with 2 coupling-hooks; peraeopods stout; first pleopod not indurated, inner ramus nearly as broad as outer; male stylet on second pleopod not reaching end

of ramus; peduncle of uropods very broad, outer ramus narrower but not shorter than inner.

Very similar to *Pontogelos*, Stebbing (Tr. Linn. Soc. Lond. vol. 14, pt. 1, p. 97, 1910), especially as regards the mandibles and maxillipeds, but differing in the antennae, second maxillae, uropods and peraeopods.

PONTOGELOIDES LATIPES, n. sp.

(Plate XXX. C.)

Body very convex, smooth. Head with small median rostrum meeting the frontal lamina, which is narrow, anteriorly broader than posteriorly, in side view strongly curved; eyes oval, black, in the lateral angles. Peraeon segments 4-7 with a low transverse carina running a short way across the segments from the middle of the sutures with the epimera. Epimera without oblique grooves, rather broad, postero-lateral angles subacute but not produced. Pleon equal in length to peraeon segments 2-7 together. Telson rounded, broader than long, margin minutely serrulate apically, with a few plumose setae.

First antenna reaching to posterior margin of 1st peraeon segment, anterior margin of 1st joint produced along the 2nd joint, but not directed forwards, 3rd joint nearly as long as but much more slender than 2nd joint, flagellum thrice as long as peduncle, 16- or 17-jointed.

Second antenna subequal to first antenna, peduncle 5-jointed, very stout, inner margin of 4th joint and inner apex of 5th joint with long setae, flagellum scarcely as long as peduncle, 12-jointed.

Epistome (clypeus) triangular, prominently projecting.

Upper lip transverse, $2\frac{1}{2}$ times as broad as long, distal margin excavate.

Mandibles with cutting-edge tridentate, molar as in *Civolana*, palp 2-jointed, 2nd joint nearly thrice length of 1st joint, apex rounded with 3-4 long setae.

First maxilla normal, outer plate with 11 spines, inner plate with 3 plumose setae.

Second maxilla normal, outer and middle plates a little narrower than inner plate, each with ca. 9 setae, the inner plate with several stout plumose setae and smaller simple setae.

Maxilliped, 2nd joint (in ♂) twice as long as broad, 4th and 5th joints broad, all joints strongly setose, inner plate narrow, equal in length to 2nd joint, tapering to a blunt point with 2 small plumose setae, outer margin with ca. 8 strong plumose setae, inner margin

with 1 coupling-hook near base and a larger one a little beyond the middle.

First peraeopod, inner margins of 4th, 5th, and 6th joints respectively with ca. 20, 6 and ca. 8 closely set sharp spines.

Seventh peraeopod, 2nd joint cylindrical, not swollen, with 1 bunch of setae at inner apex and another just before apex; inner apex of 3rd joint with 2 spines, outer apex with 1; inner margin of 4th joint with 3 spines, outer apex with 1; outer and inner margins of 5th joint with 3 spines; inner margin of 6th joint with 4 spines; 7th joint half length of 6th.

Male appendages on 7th peraeon segment close together, very short and stout.

First to third pleopods, inner apical angle of peduncle with 3-4 hooked setae and several plumose setae, inner ramus nearly as broad as outer.

Second pleopod, male stylet arising at $\frac{1}{3}$ along the inner margin, short, not reaching apex of ramus, stout, apex acute.

Uropods, peduncle very broad, nearly $2\frac{1}{2}$ times as broad as long, outer apical angle with 1 spine, inner margin fringed with long plumose setae; rami extending a little beyond telsonic apex; inner ramus triangular, base as broad as peduncle, apex subacute, inner margin, apex and distal portion of outer margin with long plumose setae, outer margin with deep subterminal indentation; outer ramus much narrower and scarcely longer than inner ramus, narrow-lanceolate, apex with plumose setae.

Length: 9 mm.; *breadth*: 3.75 mm.

Colour: In spirit, whitish with obscure indications of grey stellate markings.

Locality: Fish Hoek, False Bay, 26/5/96, 1 ♂, and Jan., 1898, ♂♂ and nonovigerous ♀♀ (R. M. Lightfoot); March, 1901, ♂♂ and nonovigerous ♀♀ (W. F. Purcell). In pools some little distance from sea. (S.A.M. Nos. A256, A245, and 9861.)

FAMILY CORALLANIDAE.

1890. *Corallanidae* (part), Hansen, Vidensk. Selsk. Skr. ser. 6, vol 5, pt. 3, p. 280.

1890. *Alcironidae* (part), id. *ibid.* pp. 285, 312, 390.

1893. *Corallanidae* (part), Stebbing, Hist. Crust. p. 345.

1893. *Alcironidae*, id. *ibid.* p. 346.

1904. *Corallanidae*, id. in Gardiner's Fauna, Mald. Laccad. Archip.
vol. 2, pt. 3, p. 703.
1905. ,, id. in Herdman's Ceylon Pearl Fish. Suppl. Rep.
23, p. 19.

GEN. CORALLANA, Dana.

1853. *Corallana*, Dana, U.S. Expl. Exp., vol. 13, pp. 748, 773.
1879. ,, Schioedte and Meinert. Naturh. Tidsskr. ser. 3,
vol. 12, p. 286.
1904. ,, Stebbing, l.c. p. 704.

CORALLANA AFRICANA, n. sp.

(Plate XXX. D.)

Body with a few scattered hairs, chiefly on the lateral portions. Head without sculpturing, eyes large, oval, black. Epimera visible in dorsal view, postero-lateral angles acute, but not sharply produced or spinose. Pleon of 5 segments plus telson, 5th segment with a low, inconspicuous median tubercle (in young specimens quite obsolete), telson as long as basal width, lateral margins slightly sinuous, apex blunt, with 6 stout spines, interspersed with plumose setae, which extend up the lateral margins.

First antenna scarcely reaching to end of peduncle of second antenna, basal joint stout, flagellum 7-jointed.

Second antenna reaching to posterior margin of 3rd pereopod segment, peduncle 5-jointed, 2nd and 3rd joints short, 4th and 5th joints subequal or 4th slightly longer than 5th, flagellum $1\frac{1}{4}$ times length of peduncle, 16-19-jointed.

Upper lip nearly thrice as broad as long, emarginate.

Lower lip, lobes twice as long as broad, apically rounded, with a small pointed accessory lobe near the end.

Mandibles elongate, apex not greatly elongate, bifid in the left, entire in the right, palp 3-jointed, 2nd joint longest, with setae on outer apex, 3rd joint ovate, with long setae.

First maxilla sickle-shaped, unguis well developed and strongly chitinized.

Second maxilla apparently absent, as no trace of it could be found.

Maxilliped, 2nd joint a little longer than 3rd-7th joints together, 3rd and 4th joints small, 5th joint circular, as long as 3rd and 4th together and almost equally wide, with 1 long spine and 2 small

setae on inner apex, 6th joint slender, narrower than any of the preceding, 7th joint minute with apical tuft of setae.

First peraeopod, 3rd and 4th joints subequal, 4th with 5 blunt tubercles on inner margin, 5th joint small, triangular, 6th joint tapering slightly, 7th joint strong and only slightly curved.

Seventh peraeopod, 2nd joint equal to 5th-7th together, 3rd joint slightly expanded posteriorly, with apical setae, 4th joint with 1 spine in middle of and 2 at apex of inner margin, 5th joint with 1 and 3 spines respectively and also a tuft of plumose setae on posterior apical angle, 6th joint with 1 spine in both of the above-named positions and an apical tuft of setae, 7th joint strongly curved.

Second pleopod, male stylet reaches nearly to end of rami, straight, narrow, apex blunt.

Uropods, rami subequal in length, only just reaching beyond telsonic apex, inner ramus about twice as wide as outer, with bluntly rounded apex, outer lanceolate, apex subacute, both rami fringed with plumose setae.

Length : 7 mm. ; *breadth* : 2.5 mm.

Colour : Yellowish-grey with darker mottlings, a more or less distinct dark median stripe.

Locality : Zwartkops River, Port Elizabeth. May, 1913. ♂♂ and 1 ♀ with 9 embryos. (Mrs. Patterson.) (S.A.M. No. A2267.)

GEN. LANOCIRA, Hansen.

1890. *Lanocira*, Hansen, Vidensk. Selsk. Skr. ser. 6, vol. 5, pt. 3, pp. 313, 391, 395.
1904. „ Stebbing in Gardiner's Fauna Mald. Laccad. Archip. vol. 2, pt. 3, p. 706.
1905. „ id. in Herdman's Ceylon Pearl Fish. Suppl. Rep. 23, p. 19.
1910. „ id. Journ. Linn. Soc. Lond. Zool. vol. 31, p. 217.

LANOCIRA CAPENSIS, n. sp.

(Plate XXXI. A.)

1913. ? *Lanocira*, sp., Tattersall, Tr. Roy. Soc. Edinb. vol. 49, pt. 4, p. 880.

Body from about 5th peraeon segment onwards densely setose, more so in the female than in the male, but nearly glabrous in the young. Head with a small upturned rostrum in ♂, the pair of tubercles adjacent to the eyes very low, surface of the head

between them concave; in the ♀ only the median longitudinal concavity present. First peraeon segment longer than 2nd or 3rd, but subequal to 4th and 7th, 5th and 6th a little longer than 1st. Pleon resembling that of *L. gardineri*, Stebbing, except for its denser covering of setae; 6 apical spines on telson.

First antenna equal to peduncle of second antenna, 3rd joint a little over half the length of the fused 1st and 2nd joints, flagellum equal to peduncle, 6-jointed, with sensory filaments.

Second antenna reaching to about middle of 2nd peraeon segment, 4th joint equal to 1st, 2nd and 3rd together, 5th a little shorter, flagellum equal to peduncle, 12-jointed, setose.

Frontal lamina pentagonal.

Upper lip thrice as broad as long, slightly emarginate.

Lower lip, lobes broad with truncate apices.

Mandibles most resembling those figured for *L. latifrons*, Stebbing, cutting-edge bidentate, secondary cutting-edge bidentate, molar conical with a few minute apical setules, palp strong, rather longer than trunk of mandible, 2nd joint a little longer than 1st, 3rd joint shortest, 2nd and 3rd setiferous.

First maxilla, the curved spine on outer plate is of moderate length, about $\frac{1}{4}$ that of outer plate.

Second maxilla, 2nd joint with 3 apical setae, 3rd joint very slender with 2 apical unequal setae.

Maxilliped, 2nd joint scarcely longer than broad, basal joint in ♀ very large, with plumose setae on its inner produced apex, epipod in ♀ (vibratory plate) reaching to 6th joint, margin with plumose setae.

First peraeopod, 3rd joint with spine on outer apex and 2-3 setules on inner apex, 4th joint with 4 strong spines on inner margin (the apical one the largest) and 2 spines on outer apex, 6th joint with 3 long setae on inner apex, in ♂ the unguis is rather longer and more strongly curved than in ♀.

Second and third peraeopods, 3rd joint with 1 spine on outer apex and 2 stout spines on inner apex (the apical one the larger), 4th joint as in first peraeopod.

Seventh peraeopod resembling that of *L. gardineri*, Stebbing.

Male appendages on 7th peraeon segment close together, short, with blunt apices.

Second pleopod, male stylet long, slender, acute, extending a short distance beyond apex of ramus.

Uropods, inner ramus extending only a very little beyond telsonic apex, apex broadly rounded with 9 spines and numerous

long setae, outer ramus a little shorter than inner, with ca. 9 spines as well as long setae on outer and apical margins.

Length: ♂ 6 mm., ♀ 7.5 mm.; *breadth*: ♂ 2.5 mm., ♀ 3 mm.

Colour: Whitish, with fairly numerous minute stellate black specks.

Locality: St. James, False Bay. April, 1901. 1 ♀ with embryos (Dr. W. F. Purcell), and 29/4/12. 1 ♂, 2 ♀♀ with embryos. (K.H.B.) Amongst the tubes of the reef-building worm *Sabellaria capensis*, low-tide. (S.A.M. 9857 and A2561.)

This species resembles very closely *L. gardineri*, Stebbing, but differs from the latter in the form of the mandibles, the length of the spine on the second maxilla and in having 4 spines, instead of 5, on the 4th joint of the first peraeopod. Moreover, it differs not only from *L. gardineri*, but from all other species of the genus in the length of the male stylet on the second pleopod.

This is most probably the same species as the mutilated specimen briefly mentioned by Tattersall. The smaller number of spines on the uropods of the latter may well be due to injury. Tattersall compares the first maxilla of his specimen with that of *L. zeylanica*, Stebbing, but in the present specimens it is not so strongly developed, and moreover his specimen is 12 mm. long and is therefore, after allowing for the effects of injury and the method of preservation, considerably larger than the St. James' specimens.

Tattersall's specimens came from Saldanha Bay, 8-10 fathoms.

FAMILY AEGIDAE.

1879. *Aegidae*, Schioedte & Meinert, Naturh. Tidsskr. ser. 3, vol. 12, p. 325.
1905. ,, Stebbing in Herdman's Ceylon Pearl Fish. Suppl. Rep. 23, p. 20.

GEN. AEGA, Leach.

1815. *Aega*, Leach, Tr. Linn. Soc. Lond. vol. 11, p. 369.
1879. ,, Schioedte & Minert, l.c. p. 334.
1901. ,, Whitelegge, Sci. Res. "Thetis," pt. 3, p. 229.
1905. ,, Richardson, Bull. U.S. Nat. Mus. No. 54, p. 167.
1905. ,, Stebbing, l.c. p. 20.
1910. ,, Thielemann, Abh. Ak. Wiss. Munich, 2 Suppl. Bd. 3 Abt. p. 28.
1910. ,, Richardson, Wash. Bur. Fish. Doc. 736, p. 11.

AEGA GRACILIPES, Hansen.

1895. *Aega gracilipes*, Hansen, Isop. Plankton Exp. p. 15, pl. 1, figs. 6-6c (σ).
1901. ,, Richardson, Proc. U.S. Nat. Mus. vol. 23, p. 533.
1905. ,, id. Bull. U.S. Nat. Mus. No. 54, p. 183, figs. 167, 168.

Flagellum of first antenna 14-jointed. Second antenna extending to posterior margin of 2nd peraeon segment, flagellum 17-jointed.

Length: 24 mm.; *breadth*: 12 mm.

Colour: In spirit, uniform yellowish.

Locality: Cape Point N.E. $\frac{3}{4}$ N. distant 39 miles. 310-560 fathoms. 17/9/03. 1 ovigerous ♀. s.s. "Pieter Faure." (S.A.M. No. 150980.)

Geogr. Distribution: N. Atlantic, 59° N. 8.5° W., 1524 metres (Hansen); Gulf of Mexico, 730 fathoms (Richardson).

AEGA MONOPHTHALMA, Johnston.

(Plate XXXI. B.)

1834. *Aega monophthalma*, Johnston, Lond. Mag. Nat. Hist. vol. 7, p. 233, figs. 43a, b, nec c.
1868. ,, ,, Bate & Westwood, Brit. Sessile-eyed Crust. vol. 2, p. 286.
1877. ,, ,, Schioedte & Meinert, l.c. ser. 3, vol. 11, p. 89.
1879. ,, ,, id. l.c. ser. 3, vol. 12, p. 89.
1897. ,, ,, Sars, Crust. Norw. vol. 2, p. 62, pl. 26, fig. 1.

Body glabrous, very finely punctate, the 5th-7th peraeon segments and the whole of the pleon appearing somewhat eroded.

Head, with the exception of a small triangular portion in the middle of the posterior margin, completely occupied by the eyes, which are in contact for about 9 rows of facets; rostrum completely separating the bases of 1st antennae, curving downwards and meeting the frontal lamina. The latter is shield-shaped, longer than broad, concave, anterior margin bisinuate with the median lobe projecting further than the lateral lobes (more strongly bisinuate than in Sars' figure).

First peraeon segment slightly the longest, 7th the shortest, the rest subequal, anterior margin of 1st segment deeply bisinuate, posterior margins of all segments granular. Epimera distinct on

all segments except 1st, granular, especially the posterior ones, each with a slight hollow above the oblique carina; a carina is also present on lateral margin of 1st segment; epimera of 2nd and 3rd segments posteriorly rounded, of segments 4-7 becoming gradually more produced and acute, but never sharply pointed, epimeron of segment 6 reaching postero-lateral angle of 1st pleon segment, of segment 7 reaching middle of lateral margin of 2nd pleon segment.

First segment of pleon very short, but not completely concealed dorsally by the 7th pereon segment, other segments subequal, posterior margins granular, postero-lateral angles of 1st-4th segments subacute; telson subtriangular, apex rounded with median projecting point, surface granular, excavate at base on either side of the median carina which extends to apex, margin fringed with plumose setae and crenulate, with a stout spine springing from each indentation (ca. 12 on each side).

First antenna extending to middle of eye and nearly to end of 5th peduncular joint of 2nd antenna, 1st and 2nd joints strongly expanded, 2nd joint shorter than 1st, exterior apex produced, 3rd joint slender, not extending far beyond external apex of 2nd, flagellum a little longer than 1st peduncular joint, 8-jointed.

Second antenna reaching to posterior margin of 2nd pereon segment, peduncular joints increasing in length, 5th joint equal to 1st joint of 1st antenna, flagellum half as long again as peduncle, 22-jointed.

Mandible with apex incurved at right angles to trunk, tapering, acute, palp longer than trunk, 2nd joint twice as long as 1st and thrice as long as 3rd, outer margin of 3rd and apices of 2nd and 3rd joints setose.

First maxilla slender, apex with 5 apical hooked spines and one smaller subapical.

Second maxilla with trunk broad at base, rapidly narrowing, outer lobe broader than apex of trunk, with 3 strong curved spines, inner lobe half length and width of outer, with 4 curved spines.

Maxilliped, 1st joint very short, 2nd joint $2\frac{1}{2}$ times as long as broad, 3rd joint short, 4th joint triangular, produced internally, 5th joint also triangular, inner apex produced with 4 spines, 6th joint twice as broad as long, inner margin with 5 strong hooked spines and 2 smaller ones, 7th joint wide but very short, with 4-5 setae; inner plate extending half-way along 4th joint, narrow, apex with 2 setae.

First peraeopod, inner apex of 3rd joint without spine, inner margin of 4th joint with 1 basal and 2 apical spines.

Second paraeopod, inner apex of 3rd joint with 1 spine, inner margin of 4th joint with 3 basal and 2 apical spines.

Third peraeopod, inner apex of 3rd joint with 2 spines, inner margin of 4th joint with 3-4 (right and left peraeopods respectively) basal and 2 apical spines.

Fourth peraeopod, 3rd and 4th joints subequal, as also the 5th and 6th, the number of spines as follows: inner apex 2nd joint 2 small ones, outer apex of 3rd joint 2, inner margin of 3rd joint 1 near base 2 in middle and 2 at apex, outer apex of 4th joint 3, inner margin of 4th joint 1 basal 3 median and 3 apical, outer apex 5th joint 3, inner margin of 5th joint 1 basal 3 median and 4 apical, outer apex of 6th joint 1 spine and 2 setae, inner margin of 6th joint 1 basal 1 median and 2 apical.

Seventh peraeopod more slender than preceding, perhaps due to immaturity of the specimen; the spines are as follows: inner apex of 2nd joint 2, outer apex of 3rd joint 3, inner margin of 3rd joint 1 basal 1 median 2 apical, outer apex of 4th joint 5, inner margin of 4th joint 1 basal 2 median 4 apical, inner margin of 5th joint 1 basal 2 median and whole of apical margin with spines, outer apex of 6th joint 2 small spines and 1 seta, inner margin of 6th joint 1 basal 2 median and 3 apical.

Second pleopod with 9 hooked spines and 8 plumose setae on inner margin of peduncle.

Uropods, peduncle $\frac{3}{4}$ length of inner ramus, rami scarcely as long as telson, inner ramus truncate, distal margin slightly emarginate, both outer and distal margins fringed with plumose setae, denticulate, each with ca. 10 spines; outer ramus narrower than inner, apically rounded, margins fringed with plumose setae, outer and distal margins faintly denticulate, ca. 12 spines on outer margin and 4 round apex.

Length: 23 mm.; *breadth*: 10.5 mm.

Colour: In spirit, uniform yellowish.

Locality: East London NW. $\frac{1}{2}$ N. distant 20 miles. 400 fathoms. 17/4/01. 1 immature specimen. s.s. "Pieter Faure." (S.A.M. 150979.)

Geogr. Distribution: Iceland, Shetland, N. Britain, Norway, German Ocean, Skagerak (Schioedte & Meinert). Parasitic on the Cod (*Gadus morrhua*).

This specimen is in perfect harmony with the description of Schioedte & Meinert, except in the lesser number of flagellar joints

of the 1st and 2nd antennae, and the spines on the 4th joint of the 1st-3rd pereopods. Since the specimen is immature and only $\frac{3}{4}$ the length of the smallest measurements given by the above authors, these differences may be ascribed to difference in age as well as local variation.

The above description is rather detailed in order to facilitate comparison with European specimens, since the discovery of this northern form in deep water off the South African coast bears on the interesting question of Bipolarity.

AEGA MONILIS, n. sp.

(Plate XXXI. C.)

Body with the usual fine scattered punctation, glabrous. Head with rostrum curving downwards but not completely separating bases of 1st antennae, and not reaching the nodular, rhomboidal frontal lamina. Eyes large, oval, contiguous for 5 rows of facets. Peraeon segments 1-3 and 7 subequal, 4-6 a little longer, anterior margin of 1st segment not bisinuate, posterior margin of each segment with a transverse row of granules or small tubercles, faint on the first 3 segments; these segments have in addition a transverse carina across the middle, which is smooth in segment 1, but granulate in segments 2 and 3. Epimera of segments 2-4 as long as segments, posteriorly truncate, postero-inferior angles rounded, that of segment 5 similar but a little longer than segment, those of segments 6 and 7 one-third as long again as segments, postero-inferior angles subacute, that of 7th segment reaching to middle of 2nd pleon segment, all epimera with an oblique carina, above which surface is concave, those of 4th-7th segments with a second weaker carina anterior to the other.

Pleon with 1st segment short, the rest subequal, none of the postero-lateral angles produced, posterior margins with a transverse row of small tubercles; telson subtriangular, sides rounded; in one specimen the apex has a blunt median point, flanked on either side by a spine arising from a small indentation, posterior margin finely crenulate and fringed with plumose setae; in the other specimen (from East London) the apex is subtruncate, with the margin as in the first specimen; surface granulate, without median keel or excavations at base.

First antenna reaching to middle of 1st pereon segment and end of peduncle of 2nd antenna, 1st and 2nd joints not expanded, 2nd a little shorter than 1st, 3rd longer than 1st and 2nd together, flagellum equal to peduncle, 9-11-jointed.

Second antenna reaching to end of 2nd peraeon segment in one specimen, to end of 3rd in the East London specimen, 1st joint larger than 2nd, 3rd, 4th and 5th increasing in length, flagellum half as long again as peduncle, 15-17-jointed.

Mandibles, trunk stout, apex entire, not very acute nor curving inwards, palp longer than trunk, 1st and 3rd joints subequal, 2nd half as long again.

First maxilla rather stout, apex with 1 stout spine and 4 smaller ones.

Second maxilla, basal joint rapidly narrowed distally, outer lobe rounded with 2 hooked spines, inner lobe smaller with 3 not strongly hooked spines.

Maxilliped, apex of 4th joint with 2 setae, of 5th with 2 spines and 1 seta, 6th joint not broader than long, with 3 hooked spines, 7th conical, small, with 1 long apical seta and 2 smaller ones, inner plate reaching to middle of 4th joint, unarmed.

First peraeopod inner apex of 3rd joint unarmed, inner margin of 4th with 3 blunt spines, of 6th with 1 sharp apical spine and 1 very small subapical one.

Second and third peraeopods, apex of 3rd joint with 1 spine, inner margin of 4th joint with 5 blunt spines, of 6th as in first peraeopod.

Fourth to seventh peraeopods, 3rd joint not elongate, in 7th peraeopod about half length of 2nd, all joints (except 2nd) armed with numerous strong spines.

Second pleopod, male stylet straight, fairly stout, tapering to an acute apex, shorter than ramus, inner margin of peduncle with 6 hooked spines and numerous plumose setae.

Uropods, peduncle three-quarters length of inner ramus; inner ramus only just reaching beyond telsonic apex, apex truncate, inner angle rounded, outer angle acute, posterior margin with 4 indentations from each of which arises a spine, outer distal margin with 1 large spineless indentation and 2 smaller ones with spines, posterior and outer margins in addition finely crenulate and fringed with plumose setae; outer ramus shorter than inner and scarcely half as wide, lanceolate, apex acute, inner margin with 2, outer with ca. 8 spines, margins not crenulate but fringed with plumose setae.

The East London specimen differs slightly in having 6 spines and much stronger indentations and crenulations on posterior margin of inner ramus.

Length: 18 mm.; *breadth*: 7.5 mm.

Colour: In spirit, uniform yellowish or pinkish.

Locality: Lion's Head SE. $\frac{1}{2}$ E. distant 42 miles (off Cape

Petinsula). 156 fathoms. 9/3/00. 1 ♂. Sandy Point N. $\frac{1}{4}$ E. distant 10 miles (off East London). 95 fathoms. 14/8/01. 1 ♂. s.s. "Pieter Faure." (S.A.M. Nos. 150982 and 150981.)

Resembles rather closely *A. ophthalmica* (M. Edw.), which however has a bisinuate anterior margin to 1st peraeon segment, a larger number of flagellar joints in 1st antenna, 10 long slender spines on inner margin of 4th joint of anterior peraeopods, and the telson basally excavate.

A. megalops, Norm. & Stebb., 1904, is easily distinguished by having the anterior peraeopods unarmed, though otherwise very similar to the present species.

The specific name in allusion to the bead-like ornamentation of the peraeon and pleon segments.

AEGA UROTOMA, n. sp.

(Plate XXXII. A.)

Exceedingly close to *Ae. truncata*, Richardson (1910, l.c. p. 14, fig. 13).

Body finely punctate. Head with a small median rostrum not nearly as large as in *Ae. truncata*, eyes large, oval, their distance apart equal to one-third their greatest diameter instead of one-half, occupying therefore a relatively larger portion of the head. First peraeon segment longer than 2nd, 3rd and 7th, but subequal to 4th, 5th and 6th, with its anterior margin straight not bisinuate. Epimera of 2nd and 3rd segments as long as their segments, postero-inferior angles rectangular, pointed, of 4th, 5th, 6th and 7th segments a little longer than their segments, postero-inferior angles acute, pointed, each with one oblique carina on the lateral surface and another where the lateral surface passes into the ventral, 1st peraeon segment with a carina on lateral margin but no epimeron. Lateral margins of pleon segments 1-4 with a carina. Telson a little asymmetrical, with two shallow but distinct hollows at base, sides straight, posterior margin slightly concave, postero-lateral angles rounded.

First antenna reaching to end of peduncle of 2nd antenna or the eyes, 1st and 2nd joints dilated, but 1st longer than broad, 2nd shorter than 1st, 3rd extending beyond anterior apex of 2nd joint for $\frac{2}{3}$ of its length, flagellum 14-jointed.

Second antenna with 1st, 2nd and 3rd joints subequal, 4th and 5th also subequal, flagellum on both sides incomplete.

First maxilla with 7 hooked spines on apex.

Second maxilla with 3 simple spines on outer lobe and 2 plumose setae on inner.

Maxilliped without recurved spines on the terminal, all joints as well as the large epipod fringed with plumose setae, posteriorly directed laminar expansion of the 1st joint very large, posterior margin rounded. The loss of the terminal recurved spines and the enlargement of the epipod and basal joint are evidently features of the ovigerous female. The first is correlated with the fact that ovigerous females are never captured on the host like the males and immature specimens, but are found free-living on the sea-bottom where they probably take no food. The epipod and the basal plate serve to produce a current of water through the marsupial pouch, the same structure being found in other families, e.g., *Astacillidae* (see Hansen, Cirolanidae, 1890, p. 287).

First to third pereopods with 6 spines on inner margin of 4th joint instead of the 7 found in *Ae. truncata*.

Second pleopod with 10 hooked spines and numerous plumose setae on inner margin of peduncle.

Uropods as in *Ae. truncata*, but with stout spines as well as plumose setae; outer margin of outer ramus with 2 spines and indications of 2 more, posterior margin of inner ramus with 6 spines on the right, 2 on the left, the rest having been broken off.

Length: 53 mm.; *breadth*: 24 mm.

Colour: In spirit, uniform yellowish.

Locality: Cape Point N. 50° E. distant 18 miles. 180 fathoms. 27/2/02. 1 ovigerous ♀. s.s. "Pieter Faure." (S.A.M. No. 150971.)

GEN. ROCINELA, Leach.

1818. *Rocinela*, Leach, Dict. Sci. Nat. vol. 12, p. 348.

1905. ,, Stebbing in Herdman's Ceylon Pearl Fish. Suppl. Rep. 23. p. 23.

ROCINELA ORIENTALIS, Sch. & Mein.

(Plate XXXVII. D.)

1879. *Rocinela orientalis*, Schioedte & Meinert, Naturh. Tidsskr. ser. 3, vol. 12, p. 395, pl. 13, figs. 1, 2 (♂ ♀).

1884. ,, ,, Miers, Rep. Zool. H.M.S. "Alert," p. 304.

1898. ,, ,, Richardson, Proc. Amer. Philos. Soc. vol. 37, No. 157, pp. 9, 11.

1905. *Rocinela orientalis*, Stebbing, l.c. p. 24, pl. 6 C.

1910. " " Richardson, Wash. Bur. Fish. Doc. No. 736, p. 17.

The flagella of both pairs of antennae are incomplete. As regards the shape and armature of the telson and uropods, the single specimen agrees with the description and figures given by Stebbing.

Length: 13 mm.; *breadth*: 6 mm.

Colour: In spirit, uniform yellowish white.

Locality: Umhlangakulu River mouth NW. by N. distant $7\frac{1}{2}$ miles (Natal). 50 fathoms. 14/3/01. 1 immature ♀. s.s. "Pieter Faure." (S.A.M. No. 150983.)

Geogr. Distribution: Philippine Islands and Calcutta (Sch. & Mein.); Prince of Wales' Channel, 7-9 fathoms (Miers); Moreton Bay, Ceylon and Gulf of Suez (in Brit. Mus. *vide* Miers); Ceylon, 8-20 fathoms (Stebbing); Philippine Islands, 12 fathoms (Richardson).

ROCINELA GRANULOSA, n. sp.

(Plate XXXI. D.)

Body irregularly and minutely granular, the granulations strongest on the posterior margins of peraeon and pleon segments, glabrous. Head triangular, front produced into a blunt rostrum, eyes oval, their distance apart equal in ♂ to the length, in ♀ to the width of eye, 2 small ocelli between eyes. Anterior margin of 1st peraeon segment bisinuate, in ♂ all peraeon segments are subequal, in ♀ 1st, 4th and 7th are subequal, 2nd and 3rd shorter, 5th and 6th longer, postero-lateral angles rounded, not produced. Epimera narrow, postero-lateral angles subacute in ♂, acute in ♀, not strongly produced. First pleon segment completely concealed dorsally in ♀, in ♂ nearly so, not wider than 7th peraeon segment, postero-lateral angles acute, but not produced, segments 2, 3 and 4 wider than 1st, postero-lateral angles acute, slightly produced. Telson triangular, apex rounded, sides very slightly convex, faintly and irregularly crenulate, with an occasional small spine and fringed with plumose setae, a very shallow and obscure median longitudinal groove.

First antenna reaching to middle of 5th peduncular joint of second antenna, 2nd joint twice length of 1st, with 2 plumose setae on inner apex, 3rd joint a little longer, flagellum equal to or a little longer than 3rd peduncular joint, 5-jointed, 5th joint minute, a pair of sensory filaments on 2nd-5th joints.

Second antenna reaching to posterior margin of 2nd peraeon

segment, 3rd and 4th joints subequal, 5th joint longest, flagellum equal to peduncle, 12-jointed.

Mandibles, palp with 1st joint longest, 3rd shortest, narrow and tapering.

First maxilla very slender, apex with a short stout spine and 3-4 setules.

Second maxilla about thrice as broad as first maxilla, apex bilobed, each lobe with a small apical point.

Maxilliped, 2nd joint $3\frac{1}{2}$ times as long as broad, with 1 long plumose seta on outer apical angle, 3rd joint equal to apical width of 2nd, apical joint with 3-4 recurved spines.

First peraeopod, 3rd joint with 1 strong spine and 1 seta on outer apex, 4th joint with 3 spines on outer apex, inner margin with 1 small spine at base and 2 unequal blunt spines near apex, 5th joint with 1 small spine on inner margin, 6th joint with inner margin obliquely produced, apex with 2 low and blunt teeth and 4 sub-marginal spines, in ♀ the teeth are obsolete and 3rd joint has only 1 apical spine on inner margin.

Second and third peraeopods similar, but 4th joint has on inner margin 1 stout, blunt spine at base and 2 unequal, blunt spines at apex.

Fourth to seventh peraeopods, 3rd joint shorter than 2nd in 4th and 5th peraeopods, subequal in 6th and 7th, inner margin of 3rd, 4th and 5th joints with numerous blunt tubercles as well as fairly numerous spines, spines at the apices of the joints strong.

Second pleopod, outer ramus larger than inner, inner apex of peduncle with 4 hooked and several simple setae, male stylet slender and tapering to an acute apex, shorter than ramus.

Uropods scarcely reaching telsonic apex; peduncle extends nearly to end of inner ramus; inner ramus obovate, apex rounded, margins crenulate and fringed with plumose setae, 2 spines on outer distal margin, in ♀ similar but more feebly crenulate; outer ramus subequal to inner ramus in ♂, lanceolate, apex acute, margins denticulate, outer margin in addition with 6-7 teeth, increasing in size distally, each with a spine springing from its posterior basal angle, fringed with plumose setae, in ♀ rather shorter than inner ramus, tapering rather more abruptly to the acute apex, teeth on outer margin not so strong.

Length: ♂ 14 mm., ♀ 12 mm.; *breadth*: ♂ 6.5 mm., ♀ 6 mm.

Colour: In spirit, uniform yellowish.

Locality: Umhloti River mouth NW. $\frac{1}{2}$ W. distant 15 miles (Natal). 100 fathoms. 19/12/00. 1 ♂, 1 juv. Umhloti River mouth

N. by W. $\frac{1}{2}$ W. distant 8 miles. 40 fathoms. 18/12/00. 2 ovigerous ♀♀. s.s. "Pieter Faure." (S.A.M. Nos. A246 and 150986.)

R. granulosa is in many respects close to *R. tuberculosa*, Rich., but is clearly distinguished by the weaker sculpturing on the body, the shape and armature of the 6th joint of the first 3 pairs of pereiopods and the acute apex of the outer ramus of uropods. The last but one character and the absence of ornamentation on the telson serve to distinguish it from *R. signata*, Sch. & Mein., and *R. aries*, Sch. & Mein.

FAMILY CYMOTHOIDAE.

1867. *Cymothoidae*, Bate & Westwood, Brit. Sessile-eyed Crust. vol. 2, p. 274.
1900. ,, Stebbing, S.A. Crust. pt. 1, p. 55. (References)
1910. ,, Thielemann, Abh. Ak. Wiss. Munich, 2 Suppl. Bd. 3 Abt. p. 33.

GEN. NEROCILA, Leach.

1818. *Nerocila*, Leach, Dict. Sci. Nat. vol. 12, p. 351.
1902. ,, Stebbing, S.A. Crust. pt. 2, p. 55. (References.)
1905. ,, Richardson, Bull. U.S. Nat. Mus. No. 54, p. 219.

NEROCILA RHABDOTA, Koelbel.

1979. *Nerocila rhabdota*, Koelbel, Sitzber. K.K. Ak. Wiss. Wien (Math. nat. Kl.) Bd. 78, Abt. 1, Jahrg. 1878.
1881. ,, ,, Schioedte & Meinert, Naturh. Tidsskr. ser. 3, vol. 13, p. 39, pl. 2, figs. 5, 6 (ovigerous ♀).

Among several specimens of *N. cephalotes*, Sch. & Mein., collected by the s.s. "Pieter Faure," are two specimens which agree with the description and figures of *N. rhabdota* given by the joint authors except in one respect: the inner ramus of the uropods. According to the description it is "narrow, obtuse, extending only a little beyond the apex of telson," whereas in one of the South African specimens (immature ♀) it resembles the inner ramus of *N. cephalotes*, i.e., it is acute, with a tooth on inner distal margin, but it does not extend so much beyond the telsonic apex as in the latter species. In the other specimen both inner rami are broken off short.

Since in all other respects, especially as regards the lateral margins of the peraeon segments and the epimera, both specimens cannot be separated from the typical *N. rhabdota*, the variation in the uropods must be looked upon as local.

Length : 33 mm. ; *breadth* : 13 mm. (not including lateral spines).

Colour : In spirit, uniform yellowish.

Locality : Bakkoven Rock W. $\frac{1}{4}$ N. distant $\frac{3}{4}$ mile (False Bay). 22 fathoms. 7/6/00. 1 immature ♀. Flesh Point N. by E. $\frac{1}{4}$ E. distant 4 miles. 29 fathoms. 28/1/04. 1 ovigerous ♀ ("taken from a branching sponge"). 33° 24' S. 26° 12' E. 20–30 fathoms. 15/3/99. 1 ovigerous ♀. s.s. "Pieter Faure." (S.A.M. Nos. 150969, 150970 and A2713.)

Geogr. Distribution : Senegal, from pectoral fin of *Psettus seba*, C. & V. (Koelbel).

NEROCILA TRICHIURA (Miers).

1847. *Anilocra trichiura*, White, List. Crust. Brit. Mus. p. 108.
Nulla descr.
1877. " " Miers, Proc. Zool. Soc. Lond. 1877,
p. 677, pl. 69, figs. 6, 6a.
1881. *Nerocila* " Schioedte & Meinert, Naturh. Tidsskr.
ser. 3, vol 13, p. 83, pl. 7, figs. 1, 2
(ovigerous ♀).
1910. " " Stebbing, Tr. Linn. Soc. Lond. Zool.
vol. 14, pt. 1, p. 102.

One immature ♀, 24 mm. long, 8 mm. broad, is in the "Pieter Faure" collection, but without record of exact locality. (S.A.M. No. A2564.)

Geogr. Distribution : Indian Ocean (White); Mauritius (Miers); Atlantic Ocean (Schioedte & Meinert); Philippine Islands? (Schioedte & Meinert); Great Chagos (Stebbing).

Parasitic on Flying-fishes (*Erocoetus* spp.).

GEN. IRONA, Schioedte & Meinert.

1884. *Irona*, Schioedte & Meinert, Naturh. Tidsskr. ser. 3, vol. 14,
p. 381.
1897. " Hansen, Bull. Mus. Comp. Zool. Harv. vol. 31, No. 5,
p. 110.
1905. " Stebbing in Herdman's Ceylon Pearl Fish. Suppl.
Rep. 23, p. 27.
1905. " Richardson, Bull. U.S. Nat. Mus. No. 54, p. 265.

IRONA MELANOSTICTA, Schioedte & Meinert.

1884. *Irona melanosticta*, Schioedte & Meinert, l.c. p. 388, pl. 17,
figs. 3-5 (♀).
1910. „ „ Thielemann, Abh. Ak. Wiss. Munich,
2 Suppl. Bd. 3 Abt. p. 45, pl. 2,
figs. 28, 29.

The ♀ agrees well with the original description except in a few particulars. The epimera are scarcely subpendulous or declivous on the right, on the left side not at all so, but continued in the same plane as the segments; the epimera of segments 2 and 3 are the narrowest, that of 4th segment much the largest, those of segments 5-7 intermediate in size. The uropods are not shorter than telson, but the inner ramus extends a little, the outer for nearly half its own length, beyond the telsonic apex. Both pairs of antennae are 8-jointed, the division between peduncle and flagellum indistinct. Peraeon segments, except 1st, with an obscure median depression on anterior margin, deepest on the 2nd-4th segments. The specimen is curved to the right.

The ♂ is more symmetrical, the head proportionately larger, 1st peraeon segment longest, the rest subequal. Antero-lateral angles on 2nd and 3rd segments not marked off by oblique grooves as in ♀. Epimera pendulous, those of 2nd and 3rd segments deepest, posterior margins truncate, that of 4th segment small, those of 5th-7th segments subequal, posterior margins rounded. First and lateral portions of 2nd pleon segments concealed, posterior margin of 5th segment not sinuous. Telson almost as long as broad, apex broadly rounded.

First and second antennae 8-jointed, peduncle and flagellum not distinct.

Upper lip very faintly emarginate, not 4-lobed as in *I. nanoides*, Stebbing.

Mandibles, palp stout, 1st and 2nd joints subequal, 3rd small, all joints without setae.

First maxilla, apex with 3 spines, but the other two appear to have been broken off.

Second maxilla, apex of trunk apparently with 2 small lobes each bearing 3 hooked spines.

Maxilliped, 2nd joint $2\frac{1}{2}$ times as long as broad, inner margin bent inwards at right angles to outer surface, 3rd joint $\frac{1}{3}$ as long as 2nd, 4th joint half length of 3rd, apex with 3 hooked spines.

First and second pleopods, outer ramus broader but not so long

as inner, male stylet on second pleopod arising from base of and extending $\frac{2}{3}$ along ramus, apex blunt, peduncle with prominent oval "epipod" on outer margin, inner apical angle without setae.

Uropods much longer than telson, inner ramus $\frac{1}{3}$ as long again as telson, outer ramus $1\frac{3}{4}$ times as long as telson.

Length: ♂ 15 mm., ♀ 22 mm.; *breadth*: ♂ 6 mm., ♀ 13 mm.

Colour: Yellowish-white with faint bluish tinge, telson except the posterior margin bluish black, eyes black.

Locality: Chinde, mouth of Zambezi River. 4/11/12. 1 ♂, 1 ♀ with embryos. (K.H.B.) In left branchial cavity of *Tylosaurus choram*, Forsk. (S.A.M. No. A2675.)

Geogr. Distribution: Japan, Sandwich Islands (Sch. & Mein.); Japan, on *Belone* sp. (Thielemann).

FAMILY SPHAEROMIDAE.

For references see Stebbing, Gen. Cat. S.A. Crust. 1910, p. 426. Also:—

1908. Baker, Tr. and Proc. Roy. Soc. S. Austr. vol. 32, p. 138.

1910. id. ibid. vol. 34, p. 75.

1911. id. ibid. vol. 35, p. 89.

GROUP HEMIBRANCHIATAE, Hansen.

GEN. EXOSPHAEROMA, Stebbing.

1900. *Exosphaeroma*, Stebbing, Proc. Zool. Soc. Lond. 1900, p. 553.

1910. „ id. Gen. Cat. S.A. Crust. p. 428.

1913. „ Tattersall, Tr. Roy. Soc. Edinb. vol. 49, pt. 4, p. 882.

EXOSPHAEROMA GIGAS (Leach).

1818. *Sphaeroma gigas*, Leach, Dict. Sci. Nat. vol. 12, p. 346.

1843. „ *jurinii*, Krauss, Südafrik. Crust. p. 65 (non Audouin).

1900. *Exosphaeroma gigas*, Stebbing, l.c. p. 553, pl. 39.

1902. „ „ id. S. Afric. Crust. pt. 2, p. 69.

1910. „ „ id. Gen. Cat. S.A. Crust. p. 428.

1910. *Sphaeroma jurinii*, id. ibid. p. 427. (Quotes Krauss.)

I follow Hansen (1905) and Stebbing (in 1902) in keeping *E. gigas* (Leach) and *E. lanceolatum* (White) separate, and the above synonymy refers only to the form known as *E. gigas* and figured by Stebbing in 1900. Stebbing included the species in the South African fauna from an examination of specimens from the Buffalo River. These specimens however are immature. I have examined a large series of all ages collected in the Cape Peninsula; those of the same size as Stebbing's specimens are in all respects indistinguishable from his, but the adults have the uropods extending to the end of the telson and of a different shape. There seems therefore to be some little doubt as to the specific identity of the Cape and the Falkland Islands specimens. Owing to the absence of authenticated specimens of *E. gigas* from the latter locality I am not at present able to carry out a detailed comparison of the two forms.

On the other hand, the identity of Krauss' *jurinii* with the form here called *gigas* is certain (see Introduction).

Specimens from Salt River (Cape Town) in a "pool half a mile from sea" (Dr. W. F. Purcell, S.A.M. No. 9869) have the inner ramus of the uropods sparsely setose, the outer ramus apically subacute and minutely serrulate on outer distal margin, both margins setose, the inner margin especially so. The uropods of the Buffalo River specimens identified by Stebbing are also setose, but the other specimens from Table Bay have the uropods nonsetose or very nearly so; this is the case also with the Falkland Islands specimens.

Stebbing recorded also *E. lanceolatum* (White) from Sebastian Bay. I have collected other specimens in Table Bay which appear to be referable to that species. Dr. W. M. Tattersall has kindly examined them and states that he considers the identification correct. However, as I have seen no authentic specimens of *lanceolatum* I think it best to exclude description and localities of the South African form from this present paper.

EXOSPHAEROMA KRAUSSI, Tattersall.

(Plate XXXII. D.)

1843. *Sphaeroma tristense*, Krauss, Südafrik. Crust. p. 65 (non Leach).
1910. " " Stebbing, Gen. Cat. S.A. Crust. p. 427.
(Quotes Krauss.)
1913. *Exosphaeroma kraussi*, Tattersall, Tr. Roy. Soc. Edinb. vol. 49, pt. 4, p. 884, pl. figs. 2, 6 (♀).

Dr. Tattersall assures me that adult specimens, which I had sent to him, are the same as his species, so that I am able to add the description of the adult ♂ and ♀. Moreover I am able to confirm his suspicion that this was the species which Krauss mistook for *tristense* (Leach); if Dr. Tattersall had seen an adult ♂ (as was Krauss' specimen) he would have had no difficulty with the adjective "stumpfe," as applied to the telsonic apex, in Krauss' diagnosis.

Male. The tubercles are obsolete on the anterior peraeon segments and those that are present on the posterior segments are less conspicuous than in the female. The swellings at the junctions of the epimera and body segments are however as strong or even slightly stronger. Tubercles on 4th pleon segment (not 3rd as in Tattersall's description) not quite as strong. Telson with 2 blunt basal carinae and a median apical one, which latter is fainter in ♂ than in ♀. The sides slightly concave, apex obtusely pointed.

Uropods much larger proportionately than in ♀; inner ramus nearly reaching telsonic apex, apically subtruncate, with very fine indentations on apical margin; outer ramus reaching telsonic apex, ovate, apex subacute, outer distal margin minutely serrulated.

Apex of inner ramus of adult ♀ blunter than in Tattersall's figure and more resembling that of ♂.

The following details apply to both sexes:—

Anterior margin of head with 2 semicircular indents on either side of median point, the flat, straight keel between these indents and the eyes rather strongly produced.

The epimera, as compared with those of *E. gigas*, are more separated, squarer, the antero-lateral angles less rounded.

First antenna reaching to middle of 1st peraeon segment, 1st joint rather less than twice as long as broad, 2nd as long as broad, nearly $\frac{1}{2}$ 1st, 3rd equal to $\frac{2}{3}$ 1st, flagellum equal to 1st and 2nd peduncular joints together, 11-jointed.

Second antenna reaching almost to end of 3rd peraeon segment, 1st-4th joints gradually increasing in length, 5th equal to 1st and 2nd together, flagellum longer than peduncle, 17-jointed.

Epistome, width across proximal end nearly equal to that across the arms, proximal margin flatly rounded, sides deeply concave.

Mandibles, cutting-edge tridentate, secondary cutting-edge in left bidentate, spine-row with 6 spines in left, 10 in right, palp with 1st joint stouter than 2nd and 3rd, 1st and 3rd subequal, 2nd longer, 2nd and 3rd with strong fringe of doubly denticulate setae.

First maxilla, outer plate with 8 spines, innermost 2 denticulate, inner plate with 4 plumose setae.

Second maxilla, all lobes subequal in width, outer and middle ones both with 8 spine-setae.

Maxilliped normal.

Male appendages on 7th peraeon segment short, apically blunt, distance apart equal to the width of one of them.

First to third pleopods with 4 hooked setae on inner apical angle of peduncle.

Male stylet on 2nd pleopod $\frac{1}{4}$ as long again as ramus, tapering to a fine point.

Length: ♂ 12 mm., ♀ 10 mm.; *breadth*: ♂ 6.5 mm., ♀ 5.25 mm.

Colour: Usually a uniform yellowish brown, the borders of the segments and the tubercles of a brighter and deeper hue; or the male has head, lateral parts of 1st peraeon segment, whole of 5th, 6th and 7th segments, the two tubercles on 4th pleon segment, posterior half of telson and uropods pale whitish, the central part of 1st peraeon segment, whole of 2nd, 3rd and 4th segments, 1st-4th pleon segments and basal half of telson sepia-brown; the female corresponding to this form either resembles the ♂ or has the head, peraeon, pleon and basal central part of telson brown, the remainder of telson and the uropods pale; both sexes with a light brown band across the middle of the uropods. Specimens also occur of a nearly uniform slaty-grey colour, or grey-brown with lighter mottlings, or (very rarely) pure white.

Locality: Various places in Table Bay (R. M. Lightfoot, K.H.B.), (S.A.M. Nos. A243, A2283, A2565, and A2605); St. James, False Bay (Dr. W. F. Purcell, K.H.B.), (S.A.M. Nos. 9859 and A2677); Smitswinkel Bay, False Bay. 5/7/12. (K.H.B.) ♂♂ and ovigerous ♀♀ (S.A.M. No. A2467); Saldanha Bay. 5/9/12. (K.H.B.) ♂♂ and ovigerous ♀♀ (S.A.M. No. A2462); East London. 3/7/01. s.s. "Pieter Faure" (S.A.M. No. A241). Between tide-marks.

Saldanha Bay (Tattersall).

The specimens from False Bay and East London are smaller than those from Table Bay.

EXOSPHAEROMA BREVITELSON, n. sp.

(Plate XXXII. B.)

Body moderately convex, smooth, epimera visible in dorsal view. Anterior margin of head with 2 shallow indents on either side of median point. Peraeon segments without any tubercles, only a

slight swelling on either side of junction of epimera with body-segments. Epimera separated, antero-lateral angles well rounded. Pleon segments 1-4 without tubereles. Telson triangular, broader than long, margins straight, apex subacute in ♂, rather more rounded in ♀, in both sexes 2 submedian longitudinal carinae begin near base and extend to centre, where they break up into separate tubereles which join to form a single median carina (usually broken up into separate tubereles) extending almost to apex. Surface of the telson in addition with a number of small scattered granules.

First antenna reaching to end of 1st peraeon segment, 1st joint $1\frac{1}{2}$ times as long as wide, 2nd joint as long as width of 1st, 3rd joint $\frac{3}{4}$ length of 1st, flagellum not quite as long as peduncle, 11-jointed in ♂, 9-jointed in ♀.

Second antenna reaching to end of 2nd peraeon segment, joints of peduncle increasing gradually, flagellum equal to peduncle, 14-jointed.

Epistome, proximal angles bevelled off, proximal margin straight, sides straight, not concave (*i.e.*, as far as point where the arms bend outwards).

Mandibles, cutting-edge 4-dentate, secondary cutting-edge in left tridentate, spine-row with ca. 10 spines in left, ca. 14 in right, 1st joint of palp not stronger than others, 2nd longest, 2nd and 3rd with strong fringe of doubly denticulate setae.

First maxilla, outer plate with 10 spines.

Second maxilla, outer and middle plates both with 10 spine-setae.

Maxilliped normal.

First peraeopod, inner apical angle of 4th and 5th joints with 1 strong, apically bifid seta, 6th joint with 3 such setae and 1 doubly serrulate spine at apex.

Seventh peraeopod, fur on 6th joint weaker than in other peraeopods, 4 apically bifid spines on inner margin, 5th joint with apical circle of doubly serrate spines.

Male appendages on 7th peraeon segment short, apices blunt, distance apart equal to the width of one of them.

First to third pleopods with 4 hooked setae on inner apical angle of peduncle.

Male stylet on 2nd pleopod half as long again as ramus, tapering to a fine point.

Uropods in ♂ large, lamellar, extending beyond telsonic apex, inner ramus broader distally than basally, apex truncate, inner apical angle just beyond telsonic apex, outer ramus nearly as long,

but not quite as broad as inner, broader distally than basally, apex rounded-truncate; in ♀ extending almost to telsonic apex, general shape the same as in ♂ but smaller and narrower; margins of both rami in both sexes entire.

Length: ♂ 9·5 mm. (excl. uropods), ♀ 7·5 mm.; *breadth*: ♂ 5 mm., ♀ 4 mm.

Colour: Head and pereaeon brownish, segments 5–7 lighter than the anterior segments, especially at the sides, margins of the segments as well as those of epistome and peduncles of antennae orange, pleon dark brown, telson and basal half of uropods dark brown, the apex of telson to half-way along margins and the distal half of uropods white, basal margins of uropods orange.

Locality: Sea Point near Cape Town. 29/11/13. (K.H.B.) ♂♂ ovigerous ♀♀ and juv. (S.A.M. No. A2628.) Low-tide, under stones.

EXOSPHEROMA VARICOLOR, n. sp.

(Plate XXXII. C.)

Body rather strongly convex, smooth, the epimera scarcely visible in dorsal view. Anterior margin of head with 1 fairly deep and 1 shallow indentation on either side of median point. Pereaeon segments quite smooth; in some ♂♂ there are 2 very obscure submedian tubercles (mere indications), which however are totally absent in other ♂♂ and in ♀♀. Epimera bent downwards almost vertically, not so separated as in *E. gigas*, the antero-lateral angles obsolete, the postero-lateral subacute. Pleon with 2 very obscure submedian tubercles on hind margin of segment 4 in both sexes. Telson as long as broad, sides almost straight, apex rounded, surface smooth with 2 blunt, submedian carinae, with groove between them, on basal portion, the carinae more prominent distally than basally.

Antennae similar to those of the last species, flagellum of 1st 10-jointed, of 2nd 14-jointed.

Epistome similar to that of the last species but sides concave.

Mandibles, cutting-edge 4-dentate in left, 3-dentate in right, secondary cutting-edge in left 3-dentate, spine-row with ca. 6 spines in left, ca. 9 in right, palp stout, 2nd joint longest, 2nd and 3rd joints strongly fringed.

First maxilla, outer plate with 10 spines.

Second maxilla, outer and middle plates both with 10 spines.

Maxilliped normal.

First pereopod, 2nd joint with 1 strong outstanding spine on middle of outer margin, inner apical angles of 4th, 5th and 6th joints

each with 1 strong, apically bifid spine, fur on 4th, 5th and 6th joints very thick.

Seventh peraeopod, circle of serrate spines on apex of 5th joint not well developed, inner margin of 6th joint less furry than in other peraeopods, with 4 strong spines.

Male appendages on 7th peraeon segment short, apices blunt, distance apart equal to the width of one of them.

First to third pleopods with 3 hooked setae.

Male stylet on 2nd pleopod half as long again as ramus, tapering to a fine point.

Uropods almost three-quarters the length of telson in both sexes, both rami ovate, apically rounded, inner ramus a little longer than outer, with apex slightly more pointed.

Length: ♂ 10.5 mm., ♀ 6 mm.; *breadth*: ♂ 5.25 mm., ♀ 3 mm.

Colour: Very variable: uniform pure white or grey; or white with head and 1st peraeon segment brown, or peraeon segments 1 and 4 brown, or peraeon segments 1-4, pleon and lateral portions of telson brown; or white or grey speckled with darker; or grey mottled with darker patches; or white with purplish-brown transverse bands, 1 across head and each peraeon segment, 1 across the united pleon segments 1-4 and 3 more or less curved, across the telson, the last one corresponding with the curve of the distal margin. This last form is characteristic of ♀♀, as only one ♂ with such colouration has been found. The other common form of ♀ is white with head and 1st peraeon segment brown.

Locality: Woodstock Beach. 1896. (Dr. J. D. F. Gilchrist.) Saldanha Bay. 5/9/12. (K.H.B.) Sea Point, near Cape Town. 29/11/13. (K.H.B.) ♂♂, ♀♀ with ova and embryos, and juv. (S.A.M. Nos. A85, A2559 and A2629 respectively.) Low-tide, under stones.

EXOSPHAEROMA PLANUM, n. sp.

(Plate XXXII. F.)

Body very flat, inferior margin of epimera not visible in dorsal view. Head irregularly granular, anterior margin with a fairly deep indentation on either side of median point. Peraeon segments with short longitudinal rugae on lateral portions, the rugae breaking up into irregular granules in centre; 7th segment without any process; junctions of epimera with body segments rather sunk; the epimera rather swollen, curved over on to the ventral surface, overlapping (not separated as in *E. gigas*), 2

longitudinal rugae and some irregular granules on dorsal surface and one ruga where the dorsal and ventral surfaces meet, only one ruga on the epimeron of 7th segment. Pleon segments minutely granular but otherwise without ornamentation. Telson triangular, a little broader than long, minutely granular, the granules being largest on the central raised portion; this part bears 2 sharp longitudinal keels, slightly more prominent in ♀ than ♂, which run from base of telson to the centre, where they unite and continue as a single median, less well-defined keel, to the apex; side margins nearly straight, apex subacute.

First antenna reaching to middle of 1st peraeon segment, 1st joint $1\frac{1}{2}$ times as long as wide, 2nd joint $\frac{1}{4}$ length of 1st, 3rd joint $\frac{2}{3}$ length of 1st, flagellum as long as 1st and 2nd peduncular joints together, 11-jointed in ♂, 10 in ♀.

Second antenna reaching to end of 2nd peraeon segment, joints gradually increasing in length to 4th, 5th joint very little longer than 4th, flagellum a little longer than peduncle, 17-jointed in ♂, 15 in ♀.

Epistome, proximal angles bevelled off, proximal and lateral margins straight, a deep oval pit occupying the greater portion of the proximal end.

Mandibles, cutting-edge obscurely bifid, secondary cutting-edge in left tridentate, spine-row with ca. 10 spines in left, ca. 14 in right, palp stout, 1st and 3rd joints subequal, 2nd longer, a strong fringe of serrate setae on 2nd and 3rd joints.

First maxilla, outer plate with 10 spines, inner plate with 4 plumose setae.

Second maxilla, outer and middle plates each with 12 spines.

Maxilliped, length of 2nd joint equal to twice width at distal end but not twice that of basal width, 1 coupling-hook on inner plate, 4th, 5th and 6th joints lobed internally.

Peraeopods stout; 7th peraeopod with circlet of doubly serrate spines on apex of 5th joint and 5 stout spines on inner margin of 6th joint, fur on 6th joint also less dense than in the other peraeopods.

Male appendages on 7th peraeon segment stout, apices blunt, distance apart equal to the width of one of them.

First to 3rd pleopods with 4 hooked setae on inner apex of peduncle. Male stylet on 2nd pleopod half as long again as ramus, tapering to a fine point.

Uropods in ♂ extending to end of telson, inner ramus truncate apically, inner apical angle subacute, outer apical angle rounded,

outer ramus subequal in size, ovate, apically rounded; in ♀ similar in shape but not quite reaching telsonic apex.

Length: ♂ 15 mm., ♀ 12 mm.; *breadth*: ♂ 7·5 mm., ♀ 6 mm.

Colour: Brown, inclining to orange on the margins of the segments, with the front of head, epistome, posterior margin of 4th pleon segment, whole of telson and uropods white with very faint tinge of grey due to minute pigment specks; one specimen wholly white, only 1st-4th pleon segments brown.

Locality: Sea Point, near Cape Town. 14/12/13. (K.H.B.) ♂ ♂, ovigerous ♀ and juv. (S.A.M. No. A2651.) Low-tide, under stones.

EXOSPHAEROMA PORRECTUM, n. sp.

(Plate XXXII. E.)

Body nearly parallel-sided, slightly wider across the posterior peraeon segments than across the anterior ones, glabrous.

Head with two small angular projections on antero-lateral margins and a median tubercle on frontal margin, dorsal surface with 4 transverse rows of tubercles respectively 2, 4, 3 and 3 in number, the last row being on the posterior margin of head; eyes large, black.

Peraeon with 1st segment twice as long as the others, which are subequal, two transverse rows of tubercles on 1st segment, the anterior one composed of 5, the posterior one of 7 blunt tubercles (2 and 3 respectively on either side of a median one); 2nd and 3rd segments each with a single row of 7 tubercles; 4th-6th segments each with a single row of 6 tubercles, the median one being absent; 7th segment narrower than 6th with 4 tubercles and a small indentation on posterior margin at the junction of the epimeron with dorsum; junctions between 1st-6th epimera and their segments nodular, 2nd-5th epimera bent downwards at right angles, distant from one another and slightly excavated in front of a low oblique ridge; bases of epimera interlocking ventrally.

Pleon longer than peraeon, 4th segment with 2 submedian tubercles on posterior margin; telson longer than broad, its posterior third rather suddenly narrowed to a long tapering dorsally keeled apex; 3 transverse rows of tubercles, the first composed of 2 large submedian tubercles, the second of 4, the 2 submedian ones longer than the lateral ones, the third of 2 small submedian tubercles; a faint indication of a tubercle at the base of the apical keel.

First antenna reaching to anterior margin of 1st pereon segment, 1st joint of peduncle stout, half as long again as broad, 2nd joint nearly half length of 1st but narrower, 3rd joint $\frac{2}{3}$ length of 1st, slender, flagellum nearly as long as peduncle, 8-jointed.

Second antenna reaching to posterior margin of 1st pereon segment, flagellum as long as peduncle, 11-jointed.

Epistome prominent in a dorsal view of the animal, proximal end straight, angles rounded, margins strongly concave, the arms wide and embracing the upper lip.

Mandibles with cutting-edge entire (or obscurely bifid in the left), secondary cutting-edge in the left feebly bifid, spine-row with ca. 8 spines in the left and ca. 4 in the right, molar oblique, setiferous; palp with 1st and 2nd joints subequal, 3rd shorter.

First maxilla with 8 spines on outer lobe, the 4 inmost spines serrulate.

Second maxilla with ca. 8 setae on outer and middle lobes.

Remaining mouth parts as in normal *Exosphaeroma*.

First pereopod, outer margin of 3rd joint and apex of 4th each with 1 spine, inner margin of 6th joint with 2 spines near apex.

Second pereopod, outer apex of 4th joint with 2 spines, 5th joint without spines.

Third to seventh pereopods, 5th joint with serrate spines all round apex, inner margin of 6th joint of 7th pereopod not furry, with 2 distant spines.

Male appendages on 7th pereon segment short, blunt, and some distance apart.

Second pleopod, inner apex of peduncle with 3 hooked spines, male stylet half as long again as ramus.

Third pleopod, outer ramus distinctly 2-jointed.

Fourth and fifth pleopods, outer ramus membranous and 2-jointed.

Uropods not extending more than $\frac{3}{4}$ length of telson, inner ramus parallel-sided, apex feebly bifid, outer ramus rather longer than inner, ovate-lanceolate, apex acute and outwardly recurved.

Length: 5 mm.; *breadth*: 2.5 mm.

Colour: Light brown with the lateral parts of the 4th pereon segment, the base of the pleon and a band across the telson and uropods rather darker, most of the tubercles (especially anteriorly) are tipped with yellowish brown, the others white.

Locality: Sea Point, near Cape Town. 29/11/13. (K.H.B.)
3 ♂♂ under stones at low-tide. (S.A.M. No. A2625.)

GEN. ISOCLADUS, Miers.

1876. *Isocladus*, Miers, Ann. Mag. Nat. Hist. (4) 17, p. 228.
 1905. „ Hansen, Q. J. Microsc. Sci. vol. 49, pt. 1, pp. 103,
 118.
 1906. „ Richardson, Proc. U.S. Nat. Mus. vol. 31 (1907),
 p. 114.
 1910. „ Baker, Tr. R. Soc. S. Austr. vol. 34, p. 84.

ISOCLADUS TRISTENSIS (Leach).

(Plate XXXIII. B.)

1818. *Sphaeroma tristense*, Leach, Dict. Sci. Nat. vol. 12, p. 345
 (? ♀).
 1840. „ „ M. Edwards, Hist. Nat. Crust. vol. 3,
 p. 207.
 1905. „ (?) „ Hansen, l.c. p. 117.
 ? 1906. *Isocladus magellanicus*, Richardson, l.c. p. 114, fig. 18 (♂).
 1913. *Exosphaeroma tristense*, Tattersall, Tr. Roy. Soc. Edinb.,
 vol. 49, pt. 1, p. 882, pl. fig. 1
 (juv. ♂).

Body perfectly smooth and glabrous. Seventh peraeon segment scarcely wider than 6th in ♂, with a long backward, slightly curved process reaching to the telsonic apex, in ♀ quite plain. Junction of epimera with segments well marked, but no sutures. Epimera triangular, narrowing into blunt backwardly directed processes, that of 7th segment not concealing lateral portion of 2nd pleon segment. Pleon quite smooth, telson more strongly convex in ♀ than in ♂, the elongate tubercles at base very obscure, apex subacute, not produced, with a very shallow ventral groove in both sexes.

First antenna, 2nd joint one-third length of 1st, which is stout and internally concave, 3rd joint $\frac{3}{4}$ length of 1st, slender, flagellum as long as 1st and 2nd peduncular joints together, 12-jointed.

Second antenna reaching to end of 3rd peraeon segment, 1st joint shortest, 2nd joint a little longer, 3rd and 4th joints subequal, a little longer than 2nd, 5th joint equal to 1st and 2nd together, flagellum a little longer than peduncle, 14-jointed.

Upper lip triangular with distal margin straight or slightly concave, setose. Epistome broad proximally.

Lower lip with the lobes oval, apically rounded, setose.

Mandibles, cutting-edge 4-dentate in left, obscurely tridentate in right, secondary cutting-edge in left tridentate, in right represented

by a stout, colourless, bifid spine, spine-row with ca. 10 spines in left, 12 in right, molar strong, denticulate, with a tuft of setae, palp stout, 1st and 2nd joints subequal, 3rd a little longer.

First maxilla, outer plate with 8-9 spines, the inner ones denticulate, inner plate with 4 plumose setae.

Second maxilla, all three plates subequal in width, outer and middle each with 13 denticulate spine-setae.

Maxilliped with inner plate nearly as long as 2nd joint, one coupling-hook.

All pereopods with thick fur on inner margin of 4th-6th joints (except the 6th joint of 7th pereopod), 3rd joint with 2-3 spines in middle of outer margin, 4th joint with 3-4 spines on expanded outer apex, 5th joint of 6th and 7th pereopods with apical circle of serrulate spines.

Male appendages on 7th pereon segment contiguous, narrow, apices blunt.

First to third pleopods with 4 hooked setae on inner apex of peduncle. Male stylet on 2nd pleopod nearly half as long again as ramus.

Third pleopod with 2-jointed outer ramus.

Fourth and fifth pleopods, inner ramus fleshy, with transverse folds, outer ramus pellucid, 2-jointed, outer margins of outer rami of 4th and 5th pleopods and of inner ramus of 4th pleopod setulose.

Uropods extending in ♀ as far as, in ♂ a little beyond, the telsonic apex, broad and ovate in ♂, narrower and lanceolate in ♀, outer ramus a little shorter than inner.

Length: ♂ 11.5 mm., ♀ 10.5 mm.; *breadth*: ♂ 6 mm., ♀ 5 mm.

Colour: In spirit, dark brownish grey.

Locality: Tristan d'Acunha. One adult ♂, several nonovigerous ♀ ♀ and young of both sexes. (P. C. Keytel.) 1909. (S.A.M. No. A249.)

Geogr. Distribution: Tristan d'Acunha (Leach); Straits of Magellan (Richardson); Gough Island (Tattersall).

With regard to the uropods it may be pointed out that Miss Richardson's figure hardly conforms to her statement that "the branches of the uropoda are alike in size and shape . . ."; for the inner branch is evenly rounded, whereas the outer has a blunt rounded projection on the outer distal angle. This however may be due to an exaggeration on the part of the artist. In the Tristan specimens both branches are rounded at the end, and the outer is shorter than the inner. No doubt local influences are the

explanation of these small differences, including the slightly longer antennae.

It may also be noted that, where in Miss Richardson's text "only one specimen, a female" occurs, "male" is evidently intended; the explanation to figure 18 is correctly given.

Dr. Tattersall has kindly examined one of my young ♂♂ from Tristan, and states that it is exactly the same as his from Gough Island.

Tattersall (l.c. p. 884) has suggested the possibility of *S. stimpsoni*, Heller, *S. leucura*, White, and *S. integra*, Heller, being synonyms of Leach's species. And to include *S. stimpsoni* and his own specimens of *S. tristense*, he has emended the definition of the genus *Exosphaeroma*. This emendation is now found to be unnecessary, in view of the fact that *S. stimpsoni* ♂ has a telsonic notch and that the adult ♂ of *S. tristense* is undoubtedly an *Isocladus*.

As regards *S. leucura* I can express no opinion. *S. integra*, Heller, the types of which I have examined, is certainly not synonymous with the present species, although it should be placed in the genus *Isocladus*. The three type specimens all have the ♂ appendages on the 7th peraeon segment well developed and the stylet on the 2nd pleopod free from the inner ramus, but it is probable that the adult male with fully developed dorsal process has not yet been found.

Although a detailed description of *I. integer* (Heller) is hardly within the scope of the present paper, the points in which it differs from *I. tristensis* (Leach) may be briefly mentioned. The epimera are larger and squarer, the 7th completely conceals the lateral portion of the 2nd pleon segment, the telson is not so convex, its flattened border proportionately larger, the apex blunter, the outer ramus of uropods extending only slightly beyond telsonic apex, the inner ramus with inner distal angle produced in a subacute point reaching to, but not beyond the telsonic apex, outer margin of inner ramus strongly convex (Heller's figure in Novara Crust. pl. 12, fig. 8, is good, the left-hand inner ramus being quite correctly drawn).

GEN. CYMODOCE, Leach.

1814. *Cymodoce*, Leach, Edinb. Encycl. vol. 7, p. 433.

1902. ,, Stebbing, S.A. Crust. pt. 2, p. 73.

1905. ,, id. in Herdman's Ceylon Pearl Fish. Suppl. Rep.
23, p. 42.

1905. *Cymodoce*, Hansen, Q. J. Microsc. Sci. vol. 49, pt. 1, pp. 70, 104, 119.
1910. „ Stebbing, Tr. Linn. Soc. Lond. Zool. vol. 14, pt. 1, p. 104.
1910. „ Richardson, Wash. Bur. Fish. Doc., No. 736, p. 27.

CYMODOCE AMPLIFRONS (Stebbing).

1902. *Exosphacroma amplifrons*, Stebbing, S.A. Crust. pt. 2, p. 64, pl. 11 (♂).
1905. *Cymodoce* „ Hansen, l.c. p. 122.
1910. „ „ Stebbing, Gen. Cat. S.A. Crust. p. 429.

The original description was based on male specimens, but Stebbing (l.c. p. 66) mentions a smaller specimen which “differed from the largest and from the one figured by having the telsonic apex simple, not trilobed, and by having much-reduced lobes on the basal part of the telson.”

Two large females agree with this description. Moreover the uropods are shorter and do not reach the telsonic apex. The only setae present on the pleon and uropods are: a row along the basal margin of 6th segment in advance of the insertion of the uropods; a tuft on the outer margin of peduncle of uropod; a tuft on inner apical angle of inner ramus; and a tuft on the underside of telson on either side of the terminal notch.

The hind margins of the peraeon segments are not cut into blunt denticles as in ♂, but segments 1-5 are ornamented each with a transverse row of 7 tubercles (1 median, 1 medio-lateral and 2 lateral), and segments 6 and 7 with a row of 6 tubercles (the median one being absent). The medio-lateral tubercles gradually converge posteriorly. On segments 6 and 7 there is a small inconspicuous tubercle between the medio-lateral and lateral tubercles.

The peculiar pittings on the integument of ♂ are inconspicuous in ♀.

Though apparently nearly full grown, these specimens are not ovigerous, and the mouth parts are not modified.

Length: 13 mm.; *breadth*: 7 mm.

Colour: In spirit, pinkish white.

Locality: Port Shepstone WNW. distant 2½ miles (Natal). 24 fathoms. 15/3/01. Two nonovigerous ♀♀. s.s. “Pieter Faure.” (S.A.M. No. A27.)

CYMODOCE VALIDA (Stebbing).

(Plate XXXIII. C.)

1902. *Erosphaeroma validum*, Stebbing, S.A. Crust. pt. 2, p. 66,
pl. 12 A. (♂.)
1905. *Cymodoce valida*, Hansen, Q. J. Microsc., Sci. vol. 49, pt. 1,
pp. 118-122. (Young ♂.)
1910. „ „ Stebbing, Gen. Cat. S.A. Crust. p. 430.

Stebbing in 1910 included *C. setulosum* (Stebbing) in the above synonymy as the female on the strength of Hansen's remarks, (i.e. pp. 118-122). However, among the numerous specimens of *Cymodoce* collected by the s.s. "Pieter Faure," there are 3 adult females which I think should be referred to this species as the true female. Consequently *C. setulosum* should be reinstated as a distinct species. There is also a large male agreeing essentially with Stebbing's description, but nearly a third as long again as his specimens.

Adult male. Peraeon smooth, without tubercles. The 4th segment of pleon with 2 inconspicuous submedian tubercles and another on the lateral portion; telson with 2 large submedian bosses with minute subsidiary tubercles, apex truncate and shallowly trifid.

Flagella of first and second antennae respectively 19 and 18-jointed.

Outer plate of first maxilla with 10 spines.

First peraeopod, 3rd joint with 5-6 spine-setae on outer apex, spines on inner margins of 4th, 5th and 6th joints respectively 8, 5 and 6.

Male stylet on second pleopod extends beyond apex of ramus, curving slightly outwards towards the end and minutely spinulose, apex blunt.

Ovigerous female. Peraeon smooth, without tubercles; pleon with 2 inconspicuous submedian tubercles on 4th segment and 2 bosses on telson, telsonic apex truncate, with a shallow notch but without median lobes. Epimera, pleura, telson and uropods with a pellucid border and fine scattered setae.

Flagella of first and second antennae respectively 22 and 16-jointed.

The mouth parts metamorphosed. Lower lip small, consisting of 2 blunt lobes. Incisive process of mandibles blunt, colourless, with a few minute setules, secondary cutting-edge, spine-row and molar absent. Outer lobe of first maxilla with blunt apex, marginal setules

but no apical spines, inner lobe pointed, with 3 apical setae. The long setae on second maxilla are much reduced. Second joint and epipod of the maxilliped enlarged, with long marginal setae, the inner plate and 4 distal joints furnished only with fine setules.

First pereopod, 3rd joint with 1 spine on outer apex, inner margins of 4th, 5th and 6th joints with 8, 6 and 7 spines respectively.

A slightly smaller nonovigerous ♀ from Natal, with unmodified mouth parts, should also be referred to this species, although the integument is a little rougher than in the Mossel Bay specimens. Also the submedian bosses on telson are low, the tubercles on 4th pleon segment obsolete and the apex of outer ramus of uropods more pointed.

Length: ♂ 22 mm., ♀ 15 mm.; *breadth*: ♂ 12 mm., ♀ 7.5 mm.

Colour: In spirit, yellowish white or dull pinkish, without trace of markings. Dr. Purcell gives the colour of his Kalk Bay specimen as "light brown with coeruleous spots." This accords well with the description which Stebbing gives of his specimens.

Locality: 33° 6' S. 28° 11' E. (off East London). 85 fathoms. 28/1/99. 1 ♂; Mossel Bay. 21 fathoms. 24/6/98. 3 ovigerous ♀ ♀; Umhlangakulu River mouth NW. by N. distant 7½ miles (Natal). 50 fathoms. 14/3/01. 1 nonovigerous ♀; s.s. "Pieter Faure." Kalk Bay (False Bay). Low-tide, March, 1901. 1 non-ovigerous ♀. (Dr. W. F. Purcell.) (S.A.M. Nos. A42, A37, A46 and 9862 respectively.)

CYMODOCE SETULOSA (Stebbing).

1902. *Exosphaeroma setulosum*, Stebbing, S.A. Crust. pt. 2, p. 68, pl. 12 B. (♀).

1905. *Cymodoce* sp., Hansen, Q. J. Microsc. Sci. vol. 49, pt. 1, pp. 118-122.

1910. ,, *valida* (part), Stebbing, Gen. Cat. S.A. Crust. p. 430.

As stated above, I do not think this can be regarded as the female of *C. valida*, but must be separated under its former specific name. The male is at present unknown.

CYMODOCE AFRICANA, n. sp.

(Plate XXXIII. F.)

Peraeon segments with 4 inconspicuous widely spaced tubercles, posterior margins of segments and the epimera granulate and

setiferous. Pleon of male granular, 4th segment with 2 submedian bosses and one lateral tubercle, telson with 2 submedian tubercles near base and 2 more prominent ones in the centre, apex trifid, the median lobe not as long as lateral ones. Pleon of female granular and setiferous especially towards sides, 4th segment with 2 submedian tubercles, telson with 2 submedian tubercles, apex with a notch barely visible in dorsal view, at each apical angle and at the top of the notch is a small tubercle.

Flagellum of first antenna 13-jointed in both sexes, that of second antenna 17-jointed in ♂, 15-jointed in ♀.

Outer lobe of first maxilla in ♂ and unmodified ♀ with 10 spines.

Maxilliped of modified ♀ with a few setules on inner plate and the 4 terminal joints quite smooth, 2nd joint with long marginal setae.

First peraeopod, 3rd joint with 1 spine on outer apex, inner margin of 4th, 5th and 6th joints respectively with 7, 5 and 6 spines in ♂, 5, 5 and 6 in ♀.

First to third pleopods with 3 hooked spines on inner apical angle. Male stylet on second pleopod extending beyond ramus.

Uropods of ♂, both rami pointed, outer rather narrower and longer than inner, both extending some distance beyond telsonic apex; of ♀, inner ramus truncate, with sharp outer apical angle, outer ramus shorter than and folding some way but not completely under inner ramus, apex bluntly pointed, both rami minutely setulose and extending only a short way beyond telsonic apex.

A smaller specimen (No. A44), 14 mm. × 6.5 mm., differs from the above only in the more conspicuous granulations on the peraeon segments, the stronger pubescence on the uropods and the smallness of the median lobe of telsonic apex. The East London specimens all agree with this smaller specimen; the larger of the two measures 15 mm. × 7.5 mm.

Length: ♂ 21 mm., ♀ 14 mm.; *breadth*: ♂ 10 mm., ♀ 7.5 mm.

Colour: In spirit, uniform pinkish or yellowish.

Locality: Lion's Head N. 67° E. distant 25 miles (off Cape Peninsula). 131 fathoms. 28/3/00. 1 ♂; Lion's Head N. 63° E. distant 34 miles. 154 fathoms. 19/4/00. 2 ♂♂, 2 ♀♀; Cape Point N. 50° E. distant 18 miles. 180 fathoms. 27/2/02. 1 ♂; Vasco da Gama Point S. 75° E. distant 13 miles (off Cape Peninsula). 166 fathoms. 25/4/00. 1 ovigerous ♀ and 1 non-ovigerous ♀; Buffalo River NW. $\frac{1}{2}$ W. distant 19 miles (off East London). 300 fathoms. 16/4/01. 3 ♂♂. s.s. "Pieter Faure." (S.A.M. Nos. A43, A2721, A44, A41 and A2279 respectively.)

CYMODOCE ACANTHIGER, n. sp.

(Plate XXXIII. E.)

Head, peraeon, and pleon granular, feebler in ♀, glabrous. Peraeon with 2 tubercles on 6th segment and 4 on 7th segment, in ♀ with no tubercles on any of the segments. Pleon in ♂ with 4th segment produced into 2 large submedian pointed processes, with a small tubercle on the lateral portion, telson with 2 small tubercles hidden beneath the processes, apex trifid, the median lobe not as long as lateral ones; in ♀ with 2 large submedian tubercles on 4th segment, telson with 2 small submedian tubercles, apex with a notch invisible in dorsal view, without median lobe, but the top of the notch projects as a very slight tubercle.

Flagella of first and second antennae respectively 15 and 18-jointed in ♂, 14 and 17-jointed in ♀.

Outer plate of first maxilla with 9 spines.

First peraeopod with 3 spines on outer apex of 3rd joint, inner margin of 4th, 5th and 6th joints with 5, 4 and 6 spines respectively.

Male appendages on 7th peraeon segment short, stout, apices blunt.

First to third pleopods with 4 spines in ♂, 3 in ♀, on inner apical angle of peduncle. Male stylet on 2nd pleopod extending beyond apex of ramus, tapering gradually.

Uropods extending some distance beyond telsonic apex, both rami in ♂ long, narrow and pointed, the outer longer than inner; in ♀ the inner is squarely truncate, the outer shorter and narrower than inner, apically pointed, and folding under inner ramus.

Young males, 15 mm. × 7.5 mm., resemble the female except that there are traces of the submedian tubercles on 7th peraeon segment.

Length: ♂ 18 mm., ♀ 14 mm.; *breadth*: ♂ 9 mm., ♀ 7 mm.

Colour: In spirit, yellowish white.

Locality: Buffalo River NW. $\frac{1}{2}$ W. distant 19 miles (off East London). 300 fathoms. 16/4/01. 2 ♂♂, several nonovigerous ♀♀ and young of both sexes. s.s. "Pieter Faure." (S.A.M. Nos. A40, A45.)

CYMODOCE COMANS, n. sp.

(Plate XXXIII. D.)

Head smooth, glabrous. In the male the posterior margins of peraeon segments are slightly, the epimera and pleon strongly

pubescent. In the female the peraeon and pleon are smooth, but with irregular reticulations chiefly noticeable on the pleon. The epimera with long setae. A transverse row of tubercles on 5th peraeon segment in ♂, and 2 rows on both the 6th and 7th segments. In ♀ no tubercles on any of the segments. Pleon in ♂ with 2 submedian tubercles on 4th segment, telson with 2 submedian ridges each with a small pointed tubercle at base and another at apex, below the latter the ridge is setose, 2 setose tubercles a little outside the posterior ends of ridges, apex deeply trifid, lateral and median lobes apically bifid, the median lobe not reaching beyond lateral lobes, with a smooth backwardly curving tubercle at its base. In ♀ the pleon is without any tubercles, telson evenly convex from base to apex, apex shallowly trifid, setose.

Flagella of 1st and 2nd antennae respectively 26 and 21-jointed in ♂, 24 and 20-jointed in ♀.

First maxilla with 9 spines in ♂, 11 in ♀, on outer plate.

First peraeopod, outer apex of 3rd joint with 3 spines in ♂, 2 in ♀, inner margin of 4th, 5th and 6th joints with 6, 4, and 5 spines respectively in both sexes.

Male appendages on 7th peraeon segment elongate, slender and tapering.

First to third pleopods with 3 hooked spines on inner apex of peduncle, male stylet on 2nd pleopod extending beyond ramus, straight, apex obliquely truncate.

Uropods, in ♂ both rami extend beyond telsonic apex, inner ramus parallel-sided, truncate, outer ramus broader than and folding under inner, ovate, with apical denticle, both rami strongly setose; in ♀ rami extend only a very little beyond telsonic apex, inner ramus truncate, the slightly concave truncate margin and the outer margin obscurely denticulate, outer ramus ovate, both margins obscurely denticulate, both rami with long closely-set setae.

Length: ♂ 18 mm., ♀ 13 mm.; *breadth*: ♂ 8 mm., ♀ 7 mm.

Colour: In spirit, uniform dull yellowish, living female ivory-white.

Locality: Near Muizenberg, False Bay. 5-10 fathoms. 12/9/97. 1 ♂; Rockland Point NW. by W. $\frac{1}{2}$ W. distant 1 mile (False Bay). 22 fathoms. 24/9/02. 2 juv. ♀ ♀. s.s. "Pieter Faure." Agulhas Bank. 43 fathoms. 23/5/12. (K.H.B.) 1 nonovigerous ♀. (S.A.M. Nos. A47, A35, and A2280 respectively.)

This seems closely allied to *C. zanzibarensis*, Stebbing (1910, l.c. p. 105, pl. 9D), for the style of ornamentation on the pleon is very similar. The details however are not the same; thus in *C. comans*

only the submedian teeth are present on the posterior margin of 4th pleon segment, the basal and central submedian tubercles on the telson are connected by 2 ridges and the tubercles on the outside of the central ones are separated from the latter by a well-marked groove, whereas in *C. zanzibarensis* the outside tubercle and the central one are combined into one bifid tubercle; the terminal boss is absent in *C. comans*, a small conical tubercle taking its place; and also the median lobe does not extend beyond the apices of the lateral ones.

It must be confessed that the correlation of the females with the above male rests only on a general proximity of the localities of capture and a fairly close agreement in the details of the appendages, especially the armature of the peraeopods.

CYMODOCE FALCATA, n. sp.

(Plate XXXIV. A.)

Closely allied to *C. uncinata*, Stebbing, 1902, but differing in the following particulars: head, peraeon, pleon, and uropods hirsute, the hairs on the epimera, lateral margins of pleon and a fringe on hind margin of 4th pleon segment being plumose and very long. The submedian tubercles on 4th pleon segment partake more of the character of bosses and are far more prominent than the submedian bosses on the telson, exactly the reverse of what is found in *C. uncinata*. Posterior to the bosses on the telson are 2 minute submedian tubercles. The median lobe of the trifid apex ends in a recurved hook, immediately in front of which is a flat button-like knob. The inner ramus of the uropods is similar to that of *C. uncinata*, but the outer is nearly twice as long as the inner, projecting well beyond telsonic apex, lanceolate with acute apex.

Flagella of 1st and 2nd antennae respectively 13-16-jointed and 14-17-jointed.

There are no differences in the mouth parts. In *C. uncinata* the greatest width of the inner plate of the maxilliped is described as being in the upper half. I find on examination that this is not a constant character.

The 6th joint of the 1st peraeopod has 4 spines on inner margin instead of 6, as in *C. uncinata*.

Male appendages on 7th peraeon segment rather more elongate and the male stylet on 2nd pleopod tapers more rapidly to the apex in the distal third.

Length: 13 mm.; *breadth*: 6 mm.

Colour : In spirit, uniform dirty yellow.

Locality : Green Point lighthouse S. $\frac{1}{4}$ W. distant $2\frac{1}{2}$ miles (Table Bay). 22 fathoms. 5/3/00. 3 ♂♂. ss. "Pieter Faure." (S.A.M. No. A31.)

CYMODOCE UNGUICULATA, n. sp.

(Plate XXXIV. B.)

Also close to *C. uncinata*. Body smooth, without sculpturing, with thin scattered setae. The margins of the epimera, pleon, telson, and uropods with a thick fringe of setae, stronger in ♂ than ♀. Telson with 2 large submedian bosses in both sexes, apex in ♂ trifold, the middle lobe projecting a little beyond the lateral ones and bearing a button-like knob on its upper surface, apex in ♀ with a notch concealed in dorsal view by a short blunt projection.

Flagella of 1st and 2nd antennae respectively, 12 and 14-jointed in ♂, 17 and 16-jointed in ♀.

The mouth parts do not differ greatly from those of *C. uncinata*. There are 9-10 spines on outer plate of 1st maxilla. In an ovigerous ♀ with modified mouth parts the inner plate of 1st maxilla is without setae, the other plate minutely setose, 2nd maxilla without long setae on any of the plates, terminal 4 joints of maxilliped without setae, inner plate with only 2 apical setae and outer margins of 2nd joint and epipod setose.

First gnathopod with 6, 3 and 4 spines respectively on inner margins of 4th, 5th and 6th joints in both sexes.

Male appendages on 7th pereaeon segment intermediate in length between those of *C. uncinata* and *C. falcata*, but similar in shape.

First to third pleopods with 3 hooked spines in ♂, 2 in ♀, on inner apex of peduncle. Male stylet on 2nd pleopod very distinctive. As far as the end of ramus it is of equal width, it then broadens out into a lanceolate spatula with pointed apex and margins thickly set with minute recurved spinules. An approximation to this form of stylet is found in *Cilicaca whiteleggei*, Stebbing (1905, l.c. p. 40, pl. 9 A).

Uropods scarcely reaching beyond telsonic apex, inner ramus truncate, as in *C. uncinata*, outer ramus folding under inner, ovate lanceolate, apex acute, curved outwards, with a tooth on inner margin and a semicircular indentation on outer margin, in ovigerous ♀♀ the apex is usually short and blunt, not falcate.

Length : ♂ 13 mm., ♀ 11 mm.; *breadth* : ♂ ♀ 6 mm.

Colour : In spirit, uniform yellowish, both pairs of antennae,

maxillipeds, peraeopods, and sometimes the 1st pleopods with minute black pigment-specks.

Locality: Table Bay, sewage outlet. July, 1896. (Dr. J. D. F. Gilchrist.) 3 ♂♂ and several ♀♀, some ovigerous. Saldanha Bay, low-tide. 5/9/12. (K.H.B.). 1 ovigerous ♀. (S.A.M. Nos. A84 and A2464.)

CYMODOCE UMBONATA, n. sp.

(Plate XXXIV. C.)

Very near to *C. uncinata*. Body granular, the granules arranged more or less distinctly in two transverse rows on peraeon segments, stronger and irregularly arranged on pleon. Head nearly smooth, rostral point setose. Each epimeron with a tuft of setae. Fourth segment of pleon with 2 low submedian tubercles, each with a tuft of setae which are obsolete in the adult ♂; telson with 2 narrow and obscure submedian longitudinal carinae extending to the middle of telson where they end in 2 low tubercles, apex in ♂ trifid, the median lobe shaped like a large flat-topped button, in ♀ obtusely pointed with a notch visible from behind but not in dorsal view; in young ♂♂ the apex is faintly trifid, the median lobe more prominent than the lateral ones, but not button-shaped.

Flagella of 1st and 2nd antennae respectively 14-16 and 15-17-jointed, peduncle of antennae 1 setose on anterior surface.

Outer plate of 1st maxilla with 9 spines.

First peraeopod with 3 spines on outer apex of 3rd joint, and 6, 4 and 4 spines respectively on the inner margins of 4th, 5th and 6th joints.

Male appendages on 7th peraeon segment as in *C. uncinata*.

Pleopods 1-3 with 3 hooked spines on inner apex of peduncle, male stylet on 2nd pleopod half as long again as ramus, stout, tapering rapidly in the distal third to the pointed apex.

Uropods scarcely reaching telsonic apex, inner ramus truncate, outer folding under inner, obovate, apex tridentate, the outer tooth being half-way up the outer margin, both notches setose, especially the outer one.

Length: ♂ 15 mm.; *breadth*: ♂ 7.5 mm

Colour: In spirit, uniform yellowish.

Locality: Cape Hangklip ESE. distant 7 miles (False Bay). 50 fathoms. 9/10/02. 3 adult ♂♂, 3 nonovigerous ♀♀, and 2 immature. s.s. "Pieter Faure." (S.A.M. No. A39.)

Though much like *C. uncinata*, this species is distinguished by the granulate surface, the tufts of setae round the anterior and

lateral margins of the animal, the much more pronounced tridentate character of the outer ramus of uropods, the large median lobe of the telsonic apex which is shaped like a button instead of a recurved hook, and also by the armature of the 1st peraeopod.

GEN. CILICAEA, Leach.

1818. *Cilicæa*, Leach, Dict. Sci. Nat. vol. 12, p. 342.
 1905. „ Stebbing in Herdman's Ceylon Pearl Fish. Suppl.
 Rep. 23. p. 33.
 1905. „ Hansen, Q. J. Microsc. Sci. vol. 49, pt. 1, pp. 104, 122.
 1905. „ Richardson, Bull. U.S. Nat. Mus. No. 54, pp. ix, 307.

In Stebbing's paper will be found a complete list of references and synonyms; and also a key to the species of the genus, in using which, however, the papers of Hansen and Miss Richardson must be borne in mind, for many of the species included in the key have been transferred by these authors to other genera.

CILICAEA LATREILLEI, Leach.

(Plate XXXII. I.)

1818. *Cilicæa latreillei*, Leach, l.c. p. 342.
 1884. „ „ Miers, Rep. Zool. H.M.S. "Alert," p. 308.
 (Synonymy.)
 ? 1902. *Cymodoce inornata*, Whitelegge, Sci. Res. "Thetis," pt. 4,
 p. 263, fig. 30 (♀).
 1905. *Cilicæa latreillei*, Stebbing, l.c. p. 36, pls. iii. B. and viii.
 (Synonymy.)
 1905. *Cymodoce inornata*, id. ibid., p. 43 (♀) (? non Whitelegge).
 1910. *Cilicæa latreillei*, Richardson, Wash. Bur. Fish. Doc. No.
 736, p. 29.

A nonovigerous female agrees well with Whitelegge's description, as modified by Stebbing to include a specimen with 2 low bosses on telson; it also agrees with Miers' description of the ♀ of *C. latreillei* and with another South African specimen which has in addition an incipient median process on 7th peraeon segment, and is a young ♂. Details of ♀ are as follows:—

Whole body covered with short thick pubescence. The greatest width and the greatest height are in the 1st peraeon segment. The fore part of the body in consequence appears enlarged. The 4th segment of pleon has a hardly perceptible median boss, telson with

2 low submedian bosses, apex trifold with the median triangular lobe not reaching the apices of the lateral ones.

Flagella of both pairs of antennae 20-jointed.

Mouth parts not metamorphosed. Outer plate of first maxilla with 10 spines.

First pereopod with 3 spines on the much-produced outer apex of 3rd joint, inner margin of 4th, 5th and 6th joints with 8, 5 and 6 spines respectively.

Inner apex of peduncle of 1st-3rd pleopods with 3 hooked spines.

Uropods, both rami project beyond telsonic apex, inner ramus with apex truncate, outer margin distally emarginate, outer ramus folding under inner, lanceolate, apically acute, with deep notch on outer margin.

I therefore regard Stebbing's Ceylon specimen as undoubtedly a ♀ *latreillei*, and would, with perhaps some hesitation on account of the smooth telson, make *inornata*, Whitelegge, also a synonym of Leach's species.

Length: ♂ 22 mm., juv. ♂ 17 mm., ♀ 15 mm.; *breadth*: ♂ 9.5 mm., ♀ 8 mm.

Colour: Uniform yellowish, in spirit.

Locality: Port Durnford NE. by E. distant 9 miles (Zululand coast). 13 fathoms. 18/2/01. 2 ♂ ♂. Beacon E of East London N. $\frac{1}{4}$ E. distant 10 miles. 52 fathoms. 12/7/01. 1 juv. ♂. 33° 6' S. 28° 11' E. (off East London). 85 fathoms. 28/1/99. 1 nonovigerous ♀. s.s. "Pieter Faure." (S.A.M. Nos. A48, A2743, A36.)

Geogr. Distribution: Port Jackson 5-7 fathoms, Thursday Island 4-5 fathoms, Port Curtis 7 fathoms, Albany Island 3-4 fathoms, and King George's Sound, W. Australia (?) (in Brit. Mus. *vide* Miers); Port Jackson (Haswell); Ceylon (Stebbing); Philippine Islands 10-29 fathoms (Richardson).

GEN. PARACILICAEA, Stebbing.

1910. *Paracilicaea*, Stebbing, Tr. Linn. Soc. Lond. Zool. vol. 14, pt. 1, p. 106.

PARACILICAEA MOSSAMBICUS, n. sp.

(Plate XXXIV. D.)

Body with a reticulate or eroded appearance. Head practically glabrous. Pereon segments setose, especially at sides, without granules or denticles. Pleon minutely granular, setose, 4th segment with 2 obscure submedian teeth on posterior margin. Telson

with 2 submedian ridges beginning at base, increasing in height posteriorly and culminating in 2 large setose bosses, each surmounted by a small glabrous point, apex trifid, the middle lobe rather bulbous dorsally, its apex just exceeding those of the lateral lobes, all three lobes apically bifid.

First antenna, flagellum 15-jointed.

Second antenna, flagellum 18-jointed.

Upper lip as broad as long, apex setose; epistome with lateral margins angularly convex.

Mandibles, cutting-edge entire, secondary cutting-edge in left mandible bidentate, spine-row with ca. 3 (?) spines in left, 5-6 spines in right.

First maxilla, outer plate with 10 spines, 3 or 4 inmost ones denticulate.

Second maxilla, outer and middle plates with 8 spines.

First peraeopod, inner margins of 4th, 5th and 6th joints with 5, 4 and 5 spines respectively, outer margin of 3rd joint with 1 spine near base, 2 in middle, between these and apex 3-4 small spines.

Seventh peraeopod, 5th joint with 3 groups of 3 spines, the apical ones much the largest, 6th joint with 3 spines in middle and 1 at apex of inner margin.

Male appendages on 7th peraeon segment contiguous, long and narrow.

Second pleopod, inner apical angle of peduncle with 2 hooked setae, male stylet half as long again as ramus, straight, tapering, minutely spinulose from base to apex.

Uropods, inner ramus projecting only a little beyond telsonic apex, subacute, hirsute, outer ramus twice as long, stout, apex bifid, hirsute on outer surface.

Length: 8 mm.; *breadth*: 3.5 mm.

Colour: Pale buff, apices of telsonic ridges canary yellow.

Locality: Mozambique (Conducia Bay). 15/11/12. (K.H.B.)
Low-tide. 1 ♂. (S.A.M. No. A2472.)

Very similar to *P. hanseni*, Stebbing (l.c. p. 107, pl. 9 C.) from Zanzibar, but easily distinguished by the sculpturing of the pleon and the absence of denticles on the peraeon segments.

PARISOCLADUS, n. g.

Maxillipeds with 4th, 5th, and 6th joints inwardly produced. Anterior peraeopods without natatory setae. Outer ramus of 3rd

pleopod 2-jointed. Outer rami of 4th and 5th pleopods membranous, 2-jointed. Seventh pereaeon segment with median process in ♂, with or without in ♀. Telson with a notch widening anteriorly in ♂, in ♀ entire. Uropods lamellate, at least in ♂. Mouth parts in ♀ not metamorphosed. Marsupial plates overlapping in middle line. Development in internal pouches.

Separated from the following genus, *Sphaeramene*, by the process on 7th pereaeon segment and the lamellate uropods, which latter character connects it with *Isocladus*.

PARISOCLADUS STIMPSONI (Heller).

(Plate XXXII. G.)

1843. *Sphaeroma perforata*, Krauss, Südafr. Crust. p. 65 (non M. Edwards).
1866. „ *stimpsoni*, Heller, Novara Crust. p. 139, pl. 12, fig. 10.
1905. *Exosphaeroma* „ Hansen. Q. J. Microsc. Sci. vol. 49, pt. 1, pp. 116, 118.
1910. „ (?) „ Stebbing, Gen. Cat. S.A. Crust. p. 428.

Heller's concise and clear diagnosis makes the identification of specimens an easy matter. But whereas his description of the telson and the process on the 7th pereaeon segment applies to the female, his figure evidently represents a male. It would seem that the specimens in the Copenhagen Museum (if correctly named), which Hansen has seen, must be all females, since if he had seen the male he could not have assigned this species to *Exosphaeroma*. Stebbing accepts Hansen's opinion, but draws attention to the inconsistency of placing this species in the genus *Exosphaeroma* as defined by Hansen.

The transverse rows of tubercles on the pereaeon segments are not present in Heller's specimens. And indeed these are very variable, being sometimes quite obsolete, sometimes (especially in specimens from False Bay) very distinct; the posterior ones being always more distinct than the anterior ones. The full complement is 6 tubercles in a transverse row on each segment, sometimes there is also a minute one on each epimeron. Two small tubercles on 7th segment, one on either side of the process.

The process on the 7th pereaeon segment is apically bifid (in side-view) in ♂, entire in ♀.

The epimera are not distinct from the segments, and each bears

a sharp keel which forms the lateral margin of the animal when viewed from above, below this keel the epimera are vertical.

Pleon with a short 1st segment, almost concealed under 7th peraeon segment, 2nd segment wider than the others, its rounded pleura entirely concealing the epimera of the 7th peraeon segment ventrally, 4th segment with 2 small submedian tubercles on posterior margin; telson with 2 low submedian carinae, outside of which on either side is an elongate tubercle, and behind the carinae 2 minute submedian tubercles. The distinctness of these 4 tubercles is very variable, in adult males they are often obsolete. Sometimes also both the elongate tubercles are divided into 2 circular tubercles. Apex acute, in the male with a narrow slit widening anteriorly into an oval longitudinal foramen, in the female entire with a dorsal longitudinal carina. In the young male the apex is bifid with a narrow Λ -shaped groove on dorsal surface.

First antenna, 1st joint longest, with sharp carina on anterior margin, 2nd joint shortest, flagellum shorter than peduncle, 12-jointed.

Second antenna, 3rd and 4th joints subequal, 5th longest, flagellum a little shorter than peduncle, 14-jointed.

Epistome short proximally rounded, the arms narrow; upper lip with slightly convex distal margin, setose.

Lower lip with short, broad lobes, apices rounded setose.

Mandibles, cutting-edge bluntly and obscurely tridentate, secondary cutting-edge in left tridentate, spine-row in both with ca. 8 spines, molar well developed, denticulate, with tuft of setules, palp stout, 2nd joint not longer than 1st or 3rd, 1st slightly longer than 3rd.

First maxilla, outer plate with 10 spines, the inner ones denticulate.

Second maxilla, outer and inner plates both with 8 denticulate setae.

Maxilliped, outer margin of 2nd joint sinuous, inner plate $\frac{2}{3}$ length of 2nd joint, slender, 1 coupling-hook, lobes of 4th-6th joints and apex of 7th setose.

First peraeopod, inner margin of 4th-6th joints with short, thick fur, inner margin of 7th with blunt denticles.

The other peraeopods similar to 1st, but becoming successively longer and 5th joint nearly as long as 4th, not triangular.

Male appendages on 7th peraeon segment short, some distance apart, apices blunt.

Marsupial plates overlapping in middle line, development in internal pouches.

First to third pleopods with 3 hooked setae on inner apex of peduncle.

Male stylet on 2nd pleopod narrow, longer than ramus, apex acute.

Fourth pleopod with outer margin of 1st joint of outer ramus sparsely setose.

Uropods in adult males extending slightly beyond, in females and immature specimens as far as telsonic apex, inner apical angle of both rami slightly prominent, outer distal margin of outer ramus serrulate.

Length: Largest ♂ 16 mm., ♀ 11 mm.; *breadth*: ♂ 8 mm., ♀ 5 mm.

Colour: Ground colour and markings rather variable; head and peraeon usually slaty, speckled with lighter dots, the 4th peraeon segment with a median semicircular blue mark, open behind, the process on 7th peraeon segment nearly white, continued in the male as a light median streak on 6th and 5th segments; telson rather paler than rest of body, its borders distinctly paler, each with 2 dark greenish-brown patches; uropods variously mottled with brown and green with lighter speckles, the green usually forming a transverse apical band on inner ramus and 2 apical patches on the outer. The outer margin of the inner ramus and the inner margin of the outer each have a semicircular transparent patch about the middle, which when the uropods are expanded appear like a circular hole through the uropods.

Locality: Table Bay (Camps Bay, Three Anchor Bay, and Sea Point). (R. M. Lightfoot.) False Bay (Kalk Bay, St. James and Smitswinkel Bay). (Dr. W. F. Purcell, K.H.B.) Port Shepstone, Natal. 23/12/12. (K.H.B.) 1 ♂. Under stones and in rock crevices from high-water mark downwards. (S.A.M. Nos. A242, A259, A263, A2456, A2468, and A2715.)

Types (2 ♂ ♂, 3 ♀ ♀) in the k.k. naturh. Hofmuseum in Vienna.

The Natal specimen differs slightly in minor details from the Cape specimens: the tubercles on the peraeon, except the two on the 7th segment, are practically obsolete, on the other hand the tubercles posterior to the two keels on the telson are rather more numerous, the apical slit is proportionately wider anteriorly and there is just a suspicion of a median tooth, the serrations on outer distal margin of outer uropods very well marked. It measures only 8 mm. × 4 mm., although it is full grown; but in this connection it may be mentioned that specimens from the east side of the

Cape Peninsula in False Bay are smaller than specimens from the west side in Table Bay (see Introduction).

PARISOCLADUS PERFORATUS (M. Edw.).

(Plate XXXII. H.)

1840. *Sphaeroma perforata*, M. Edwards, Hist. Nat. Crust. vol. 3, p. 211.
 1866. „ „ Heller, Novara Crust. p. 139, pl. 12, fig. 9 a ♂, b ♀.
 1905. *Dynamenella* (?) „ Hansen, Q.J. Microsc. Sci. vol. 49, pt. 1, pp. 117, 126.
 1910. *Cycloidura* (?) „ Stebbing, Gen. Cat. S.A. Crust. p. 431.

Body very minutely shagreened, not granulate except on the telson, where the granules are well developed and hirsute, body glabrous except on the epimera, telson and uropods, the female less strongly granulate and hirsute than the male.

In the male peraeon widening gradually to the 6th segment, 7th narrower, its lateral margins overlapped by 6th, with a stout process reaching to the middle of the telson, apex of the process with a tuft of setae and a notch on underside, a minute tubercle at base on either side. In the female peraeon nearly parallel-sided, 7th segment without a process, but posterior margin with a slight median rounded lobe.

Pleon in male with 2 very obscure submedian tubercles on 4th segment (often quite obsolete), telson with 2 small submedian tubercles in centre and numerous irregularly scattered granules, apex acute, with a narrow slit widening anteriorly into an oval transverse foramen. In the female 4th segment 2 minute submedian tubercles, telson with 2 submedian humps each with 1 or 2 minute points, apex subacute, rather upturned, with deep ventral groove, scarcely visible in dorsal view.

First antenna, 1st and 2nd joints not stout, nor internally keeled, 2nd a little over half the length of 1st, 3rd $\frac{3}{4}$ length of 1st, flagellum as long as peduncle, 10-jointed.

Second antenna reach to end of 2nd peraeon segment, 1st joint short, 3rd and 4th subequal, longer than 2nd, 5th twice length of 2nd, flagellum a little longer than peduncle, 13-jointed.

Epistome triangular, proximal end shortly truncate, the arms not embracing more than half of the upper lip, whose distal margin is rounded and setose.

Lower lip with short and broad lobes, apices subrotund.

Mandibles, cutting-edge tridentate, secondary cutting-edge in left tridentate, in right feeble and colourless, spine-row with ca. 6 spines in left, ca. 8 in right, molar quadrate in left, denticulate, in right oblique and more strongly denticulate, all three joints of palp subequal, on the 1st rather shorter than the other two.

First maxilla, outer plate with 8 spines, the inner ones denticulate.

Second maxilla, outer and middle plates each with 8 denticulate setae, all three plates subequal in breadth.

Maxilliped, 2nd joint a little longer than inner plate, 4th-6th joints inwardly produced and, like the apex of 7th, setose.

First peraeopod, 3rd joint not apically expanded, outer margin with 2 spines in middle and 1 near base, 4th joint with 3-4 spines on produced outer apex, inner margin of 4th-6th joints with thick fur.

Second to sixth peraeopods similar to 1st, but becoming successively longer, 5th joint oblong instead of triangular, 4th joint not so strongly produced on outer apex.

Seventh peraeopod the longest and most slender, 5th joint a little longer than 4th, 6th equal to 3rd, inner margin of 4th and 5th, but not that of 6th, furry.

Male appendages on 7th peraeon segment stout, contiguous, apices blunt.

First to third pleopods with 2-3 hooked setae on inner apex of peduncle.

Male style on 2nd pleopod half as long again as ramus, slender, tapering to a fine point.

Outer margins of both outer and inner ramus of 5th pleopod setose.

Uropod with rami subequal in ♂, lamellate, oval, extending just beyond telsonic apex, apices subacute, outer distal margin of outer ramus minutely serrate, margins of both rami setose; in ♀ outer ramus rather shorter than inner, neither rami reaching telsonic apex, narrow lanceolate, outer distal margin of outer ramus minutely serrate, margins of both rami finely setose.

Length: ♂ 6 mm., ♀ 5 mm.; *breadth*: ♂ 3 mm., ♀ 2.5 mm.

Colour: ♂ Grey or brown, mottled with small darker spots or patches, the 7th peraeon segment dark, the process whitish continued forwards on segments 6 and 5 as a whitish median stripe, widest on segment 5, bordered on either side with dark brown or grey, pleon and uropods usually lightish, sometimes whole animal is greyish white with scarcely any dark colouring: ♀ orange-

brown, mottled with darker, a light circular median patch on peraeon segments 5 and 6, narrowing to a median stripe on segment 7, uropods banded and mottled; young specimens usually more uniform, peraeon brown, the epimera, head and pleon lighter.

Locality: St. James and Buffels Bay (False Bay). June, 1912, and 28/9/13. (K.H.B.) Sea Point, near Cape Town. November, 1913. (K.H.B.) ♂♂, ovigerous ♀♀ and young. Under stones, at low-tide. (S.A.M. Nos. A2442, A2522, and A2606.)

Geogr. Distribution.—St. Paul (M. Edwards, Heller). I have not seen M. Edwards' type, but seeing that both his and Heller's specimens came from the same locality there would seem little reason for doubting that they are both the same species. The four tubercles on the peraeon segments mentioned by M. Edwards are absent in Heller's specimens (as in the Cape ones), but little weight can be attached to this point (see *P. stimpsoni* for variation in respect to dorsal tubercles). There is no doubt that the Cape specimens are the same species as Heller's; the only points of difference being: the latter are larger, reaching 9–10 mm., the process on 7th peraeon segment is of the same width throughout and ends squarely instead of slightly tapering to a blunt point, the tip overhangs and is hollowed beneath exactly as in the Cape specimens, there are 10 denticulate setae instead of 8 on the outer and middle plates of the second maxilla. These slight differences can only be local variations.

Heller seems to have made some curious mistakes in his report on this species. After expressing the opinion that M. Edwards' diagnosis was "based on females only," he gives a description of the male which is applicable to his fig. 9b, yet this figure is labelled ♀. As a matter of fact fig. 9b represents a young ♂; there are no ♀♀ at all amongst Heller's material. One of the bottles contains 5 juv. ♂♂ labelled "♂", the other contains 1 adult ♂ and fragments labelled "♀". Fig. 9a is correctly labelled ♂, but does not truly represent the terminal slit and foramen.

I have some little doubt as to whether these two species should be regarded as congeneric. Besides the presence of a process on the 7th peraeon segment in the ♀ of *stimpsoni* and its absence in *perforatus*, there is a very noticeable difference in the male stylets on the 7th peraeon segments. These in *stimpsoni*, which I regard as the genotype, are a good distance apart, whereas in *perforatus* they are contiguous. Although this character has not yet been taken into account in defining the genera of *Sphaeromidae* I am inclined to attach a more than specific importance to it. There are at least three types of male appendages in the family: (1) where the

two appendages are a little distance apart, characteristic of *Exosphaeroma*; (2) where they are contiguous, characteristic of *Cymodoce* and *Dynamenella*; (3) where they are fused in part, the only example of this case known to me being *Dynoides serratisinus* n. g. et sp. (see infra). The other genera, so far as known to me, can be arranged in either the first or the second group.

SPHAERAMENE, n. g.

Maxillipeds with 4th, 5th and 6th joints inwardly produced. Anterior peraeopods without natatory setae. Outer ramus of 3rd pleopod 2-jointed. Outer rami of 4th and 5th pleopods membranous, 2-jointed. Seventh peraeon segment without processes. Telson in ♂ with a slit widening anteriorly; in ♀ entire. Uropods not lamellar. Mouth parts in ♀ not metamorphosed. Marsupial plates not overlapping. Development in internal pouches.

SPHAERAMENE POLYTYLOTOS, n. sp.

(Plate XXXIII. A.)

1905. *Sphaeroma* (?) *scabriculum*, Hansen, Q. J. Microsc. Sci. vol. 49, pt. 1, pp 102, 103, 116 (non Heller).
1910. *Exosphaeroma* ,, Stebbing, Gen. Cat. S.A. Crust. p. 429.

Head, peraeon and pleon with flat-topped, button-like tubercles with the posterior margins projecting freely. They are disposed as follows: the head has a small rostral point, behind this 2 transverse rows, the anterior ones being the larger, near the posterior margin of head 2 small median tubercles, 1 large submedian and 2 small ones between this and the eye.

The first peraeon segment, which is slightly longer than any of the following segments, bears 6 large tubercles with intermediate smaller ones, the epimeron has 2 large tubercles, the one anterior to the other. Each of the remaining peraeon segments bears 6 large tubercles with 3 smaller intermediate ones, the epimera each bear 2 large tubercles (except the 7th which bears only 1), the one dorsal to the other, and a small tubercle on the junction with the segment.

Whole of 1st and central portion of 2nd and 3rd pleon segments hidden beneath 7th peraeon segment, which is without any processes. Lateral portions of the 2nd and 3rd segments with 2 small tubercles. The 4th segment bears 6 tubercles, the 2 sub-

median ones being large, the lateral portion bears 1 tubercle. Ventrally the pleuron of 2nd segment does not hide the 7th peraeon segment.

The telson has 5 transverse rows of tubercles, the 1st with 4 small, the 2nd with 6 large, the 3rd with 6 small, the 4th and 5th each with 4, of which the 2 submedian ones in the 4th row are large, the rest small; telsonic apex in ♂ with a narrow slit widening anteriorly into a transverse oval foramen, in ♀ entire, subacute, a little upturned with 2 (in adult, 1 in young) small tubercles. Ventral groove in both sexes very shallow and open.

First antenna, 1st joint stout, 2nd half as long as 1st, 3rd slender, longer than 2nd, flagellum equal to first 2 joints together, 18 joints.

Second antenna, reaching to middle or end of 4th peraeon segment, 2nd-4th joints subequal, 1st shorter, 5th half as long again as 4th, flagellum a little longer than peduncle, 17-jointed.

Epistome not greatly expanded distally, proximal end transversely bifid, labrum with distal margin slightly convex, setose.

Lower lip with short, broad lobes, apices rounded.

Mandibles, cutting-edge 4-dentate, secondary cutting-edge in left tridentate, spine-row with ca. 10 spines in left, ca. 15 in right, palp stout, 1st and 2nd joints subequal, 3rd a little shorter.

First maxilla, outer plate with 8-9 spines, inner ones denticulate, inner plate with 4 setae.

Second maxilla, outer and middle plates each with 11 denticulate setae.

Maxilliped, 2nd joint as long as inner plate, which has 1 coupling-hook about the middle of the margin, 3rd, 4th and 5th joints internally lobed.

First peraeopod, middle of outer margin of 3rd joint with 1 outstanding spine, 4th joint externally produced, with 3 spines on apex, 5th small triangular, inner margins of 4th-6th joints thickly furred, inner margin of 7th minutely denticulate.

Second to seventh peraeopods similar to 1st, but 5th joint oblong, apex of 5th in 3rd-7th peraeopods with spines all round, apex of 4th with 6 or more spines; fur on 4th and 5th joints in 7th peraeopods not so strong as on other peraeopods, absent on 6th which is sparsely setulose.

Male appendages on 7th peraeon segment short, stout, some distance apart, apices blunt.

Marsupial plates not overlapping, the brood developed in internal pouches.

First to third pleopods with 4 hooked spines on inner apex of peduncle.

Second pleopod, male stylet extending beyond apex of ramus, narrow, tapering to an acute apex.

Uropods, inner ramus narrow oblong, apex bifid, with rounded inner apex, a longitudinal row of 6 tubercles down the centre (but the number is subject to variation); outer ramus lanceolate, apex acute, turned outwards, without tubercles; both rami extending a little beyond telsonic apex.

Length: ♂ 17 mm., ♀ 16 mm.; *breadth*: ♂ 9 mm., ♀ 8 mm.

Specimens from Kalk Bay and St. James measure: ♂ 11 × 5 mm., ovigerous ♀ 9 × 4.5 mm.

Colour: Brownish grey, some or all of the tubercles of a sienna-brown or sometimes orange-brown.

Locality: Plettenberg Bay. 3/7/02. 1 ♀ with embryos, s.s. "Pieter Faure." Kalk Bay, False Bay. 26/5/96. (R. M. Lightfoot.) 2 ovigerous ♀ ♀. Sea Point, near Cape Town. Nov. and Dec., 1913. (K.H.B.). ♂ ♂, ovigerous ♀ ♀ and immature specimens. St. James, False Bay. 15/2/14. (K.H.B.) 2 ♂ ♂, 1 ♀ and young. Also 2 ♂ ♂, 1 ovigerous ♀ and 1 young ♂ from the "Pieter Faure" collection without locality. (S.A.M. Nos. A49, A262, A2647, A2679 and A2455 respectively.)

They are found at low-tide occasionally under stones, but most frequently in the holes and crevices of the reef-like masses of tubes formed by the worm *Sabellaria capensis*.

On sending specimens of this species and of the species which I took to be the true *Sphaeroma scabricula* of Heller to Dr. H. J. Hansen, he informed me that my surmise was correct, that he had not seen the true *scabricula* and that the species to which he referred on pp. 102, 103, 116 of his Revision of the Sphaeromidae was in reality the present new species. This justifies the above synonymy.

DYNOIDES, n. g.

Maxillipeds with 4th, 5th and 6th joints inwardly produced. Anterior peraeopods without natatory setae. Outer ramus of 3rd pleopod unjointed. Outer ramus of 4th and 5th pleopods membranous, without folds, 2-jointed. Seventh peraeon segment unarmed. Pleon (4th? segment) with median process. Telson with a slit with small median lobe at its anterior end. Female unknown.

DYNOIDES SERRATISINUS, n. sp.

(Plate XXXIV. F.)

Body parallel-sided, rather strongly convex, minutely granulate and finely setulose, the setules being thickest on the epimera. Head and peraeon smooth, without any trace of tubercles, 7th segment of peraeon bordered laterally by the epimera of 6th segment, epimera rather long, quadrate. Pleon segments 1-4 so intimately fused that sutures are invisible. From the posterior margin arises a large, triangular, conical process extending to middle of telson, its basal width equal to half that of the segment. Telson strongly convex in centre, where it is covered with scattered granules (stronger than those on the rest of body), near the margins and especially at the apex, it is flat, apex pointed, with a deep parallel-sided slit whose anterior end has a small triangular median lobe and whose sides are furnished with 7 backwardly-directed acute teeth. The median lobe and the outer distal margins are setulose.

First antenna reaching to middle of 1st peraeon segment, 1st joint equal to 2nd and 3rd together, 3rd a little longer than 2nd, flagellum as long as peduncle, 13-jointed, 1st joint equal to 3rd peduncular joint.

Second antenna reaching to beginning of 2nd peraeon segment, 1st and 4th joints subequal, 3rd shortest, 5th longest, 2nd intermediate in length between 4th and 5th, flagellum longer than peduncle, 20-jointed, the joints strongly setose.

Epistome, distance from proximal margin to base of upper lip less than width across the arms, proximal end rounded, sides very slightly concave, distal margin of upper lip rounded setose.

Lower lip, lobes oval, apically subacute, strongly setose.

Mandible, trunk straight, somewhat stout, cutting-edge 4-dentate, secondary cutting-edge in left 3-dentate, spine-row with 5 spines in left, 6 in right, molar quadrate, strongly denticulate and setose on posterior margin, palp with 1st joint stout, 2nd and 3rd slender, 1st and 2nd subequal in length, 3rd a little longer, 2 long setae on apex of 2nd, margin of 3rd with gradually lengthening setae.

First maxilla, outer plate with 6 spines.

Second maxilla, outer and middle plates with 4 spines, the 2 largest denticulate, all three plates subequal in width.

Maxilliped, 2nd joint 3 times as long as broad, 4th, 5th and 6th joints lobed internally, 6th not so strongly as the other two, inner plate half the length of 2nd joint, apex rounded with plumose setae, 1 coupling-hook.

First peraeopod, 3rd joint nearly equal to 2nd, with a group of spinules on outer distal margin, 4th rather strongly expanded on outer apex, outer apical angle with 1 long seta, inner apical angle of 6th joint with 1 long seta, both inner and outer margins of all the joints setulose, the inner margins more strongly so than the outer.

Second peraeopod, 4th, 5th and 6th joints more strongly furred on inner margin.

Seventh joint in all peraeopods with 3 lamella-like teeth, secondary unguis strong.

Male appendage on 7th peraeon segment long, narrow, the distal half divided into two slender tapering portions.

First pleopod, lobes subequal in length, with long plumose setae.

Second pleopod rather longer than 1st, ♂ stylet arising from base of inner ramus, $2\frac{1}{2}$ times length of ramus, stout basally but tapering to a fine point, at about half its length doubled on itself. Both 1st and 2nd pleopods with 2 hooked spines on inner apex of peduncle.

Third pleopod longer than 1st or 2nd, outer ramus unjointed.

Fourth and fifth pleopods inner ramus strongly plicate, outer ramus membranous, without plicae, 2-jointed, rather obscurely so in 5th, squamose projections in 5th small, outer margin of 4th nonsetose, of 5th with very fine setules.

Uropods extending slightly beyond telsonic apex, subequal, inner ramus ovate, apex rounded-subtruncate, distal margin indistinctly serrulate, setose, outer ramus ovate, apex rounded, outer distal margin indistinctly serrulate, whole outer margin setose.

Length: 5 mm.; *breadth*: 2.5 mm.

Colour: Brownish, a lighter longitudinal median patch on peraeon segments 4-7 and extending on to the process on pleon, portions of the telson and uropods also lighter.

Locality: Port Shepstone, Natal. 23/12/12. (K.H.B.) 1 ♂. Low-tide. (S.A.M. No. A2716.)

In one character this species differs from all other Sphaeromids known to me: the male appendages on the 7th peraeon segment instead of being separate throughout their length, are here fused in the basal half.

But for the Hemibranchiate character of the 4th and 5th pleopods this species might be placed in the genus *Dynamenella*. On the other hand, it cannot be included in any of the Hemibranchiate genera hitherto established on account of the unjointed outer ramus of pleopod 3 (*Sphaeroma* and *Hemisphaeroma* being the only genera presenting this feature).

A new genus is thus unavoidably necessary. This genus together

with the two previous ones, *Parisocladius* and *Sphaeramene*, appear to represent a third section of the Hemibranchiate *Sphaerominae*, equal in value to Hansen's *Sphaeromini* and *Cymodocini*. This section is intermediate between the Hemibranchiatae and the Eubranchiatae, combining the pleopods of the former with the telson of the latter. Within the section, *Parisocladius* and *Sphaeramene* are nearer the typical Hemibranchiatae in having a 2-jointed outer ramus to pleopod 3, while *Dynoides* is nearer the Eubranchiatae in having the outer ramus of pleopod 3 unjointed.

GROUP EUBRANCHIATAE, Hansen.

Gen. DYNAMENELLA, Hansen.

1905. *Dynamenella*, Hansen, Q. J. Microsc. Sci. vol. 49, pt. 1, pp. 107, 126.
 1905. „ Richardson, Bull. U.S. Nat. Mus. No. 54, p. ix.
 1906. „ id. Proc. U.S. Nat. Mus. vol. 31 (1907), p. 14.
 1907. „ Nobili, Mem. Acc. Sci. Torino (2), vol. 57, p. 422.

Hansen gives as one of the characters of this genus "without real processes," and Miss Richardson accepts this (l.c. 1906, p. 14). However in the type species *D. perforata* (Moore) the 7th peraeon segment is produced backward in 2 rounded lobes (Richardson, 1905, l.c. p. 300, fig. 319). To a less extent the same is the case in *D. australis*, Richardson, and *D. scabricula* (Heller). There seems therefore no reason why *D. dioxus*, n. sp., should not be included in the genus, at least for the present; and this I have done. To the definition of the genus thus modified—namely, 7th peraeon segment with or without processes in ♂—can be added: mouth parts in ♀ not modified, brood developed in internal pouches.

The terminal notch is variable, being sometimes of the same width throughout, sometimes widening anteriorly into a foramen, but it is always similar in both sexes, though often rather deeper in the ♂ than the ♀. The cordiform shape of the aperture in *D. dioxus*, n. sp., invites comparison with *D. platura*, Nobili (1907, l.c. p. 423, pl. 2, fig. 12), and *Cymodocea cordiforaminalis*, Chilton (1882, Tr. N.Z. Inst. vol. 15, p. 188, plate 22a, fig. 1). The two last-mentioned species in fact appear to be very closely allied if not actually identical. The figure of the telson of the female which Nobili gives (fig. 12a) may very possibly be that of an immature specimen in which the apical notch has not reached its full development.

The South African representatives of this genus can be divided into three groups, characterized as follows:—

Seventh peraeon segment without prominent processes, one or more of the peraeon segments tuberculate, telsonic notch widening anteriorly but without median lobe.	}	<i>D. scabricula</i> (Heller). <i>D. australis</i> , Richardson. <i>D. bicolor</i> , n. sp.
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Seventh peraeon segment with 2 prominent processes, telsonic notch widening anteriorly, with median lobe.	}	<i>D. dioxus</i> , n. sp.
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Peraeon segments all smooth, telsonic notch not widening anteriorly.	}	<i>D. kraussi</i> , n. sp. <i>D. macrocephala</i> (Krauss). <i>D. ovalis</i> , n. sp.
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D. scabricula and *D. dioxus* both occupy rather isolated positions, the first on account of its mandibles and uropods, the second in possessing well-developed processes on the 7th peraeon segment.

DYNAMENELLA SCABRICULA (Heller).

(Plate XXXV. A.)

1866. *Sphaeroma scabricula*, Heller, "Novara" Crust. p. 141, pl. 12, fig. 11.

As mentioned above under *Sphaeramene polytylotus*, the specimens assigned by Hansen in 1905 to Heller's species were in reality not that species; the *Sphaeroma* (?) *scabriculum* of Hansen therefore drops out of the synonymy of *D. scabricula* (Heller).

The transverse rows of tubercles on the peraeon segments, which are single in the centre, break up laterally into a number of small tubercles on each segment.

The two median tubercles on the 7th peraeon segment in the ♂ are much larger than the rest, in consequence of which the posterior margin is slightly bilobed.

The 1st pleon segment is narrow, only visible laterally; the 2nd segment has the pleuron produced forward as an acute process underlying the epimeron of 7th peraeon segment; 3rd and 4th segments also narrow.

There are two small and obscure submedian tubercles on the 4th pleon segment, and 2 submedian rather elongate tubercles at the base

of the telson between the two "carinae." Heller uses the word "carinae," but it would be better to say "humps," tuberculate externally, smooth internally.

In the female the tubercles on the peraeon are barely visible except on the posterior segments, where they are nevertheless smaller than in the male. The tubercles on the pleon are also smaller in the female, and the telsonic notch is less expanded anteriorly.

Epimera not distinctly separated from segments, not keeled, the inferior margins forming the outline of the animal in dorsal view, epimeron of 7th segment not hidden ventrally by pleuron of 2nd pleon segment.

First antenna, 1st joint longest, 2nd joint shortest, both with upper and lower margins sharply keeled, inner face of 1st joint hollowed for reception of first 2 peduncular joints of second antenna, that of 2nd joint with median longitudinal keel, 3rd joint cylindrical and slender, flagellum 8-jointed, not quite as long as 1st peduncular joint.

Second antenna reaching to posterior margin of 3rd peraeon segment, 5th joint longest, 2nd and 4th subequal, 1st shortest, flagellum equal to peduncle, 16-jointed.

Upper lip distally rounded, setose, only the proximal third embraced by the epistome, the proximal end of which is bluntly pointed.

Lower lip, lobes fairly elongate with rounded and setose apices.

Mandibles resembling those figured for *D. perforata* by Moore (Bull. U.S. Fish. Comm. vol. 20, pt. 2, 1902, pl. 10, fig. 14) elongate, cutting-edge bluntly rounded, secondary cutting-edge in left obscurely bidentate, spine-row with ca. 5 spines in left, ca. 8 in right, molar not prominent, denticulate, with tuft on setae on posterior margin, palp slender, joints decreasing in length, 2nd and 3rd setose.

First maxilla, outer plate with 10 spines, the inner ones denticulate, inner plate with 4 plumose setae.

Second maxilla, outer and middle plates with 8 spines.

Maxilliped 2nd joint elongate, 4th, 5th and 6th joints internally obed.

The mouth parts project rather prominently owing to their elongate character.

First peraeopod, 4th joint strongly produced and furry on outer apex, fur on inner margins of 4th, 5th and 6th joints, thick and rather long, secondary unguis not bifid, inner margin of 7th joint denticulate.

Second to seventh peraeopods similar, outer margin of 2nd joint expanded and keeled, most prominently on the 6th peraeopod.

Marsupial plates overlapping in the middle line. Position of developing embryos not determined, as no ovigerous females have been seen.

Male appendages on 7th peraeon segment contiguous, short, stout, with blunt apices.

First to third pleopods with 2 hooked spines on inner apex of peduncle. Outer ramus of 1st pleopod larger than inner, with prominent outstanding spine in middle of outer margin. Male stylet on 2nd pleopod a little longer than ramus, stout, slightly enlarged subapically, apex blunt.

Uropods extending slightly beyond telsonic apex, more so in ♂ than in ♀, inner ramus broad, apex roundly truncate, outer ramus narrower and rather longer than inner, inner margin straight, outer convex, apex pointed.

Length: ♂ 16 mm., ♀ 11 mm.; *breadth*: ♂ 8 mm., ♀ 5.5 mm.

Colour: Heller gives a good description of one colour variety. Other variations are as follows: Slaty grey, either uniform or with the darker patches mentioned by Heller, these patches being so arranged as to leave a dumb-bell-shaped light grey median stripe, one end of which is on segments 3 and 4, the other end on the telson, where it is flanked on either side by a longitudinal dark band (characteristic of young specimens from St. James); brown with the head, a median patch on peraeon segments 3 and 4, and on pleon segments 1-4, telson and uropods white; white with head and peraeon segment and the lateral portions of pleon segments 1-4 red-brown; whitish with a black V-shaped mark, diverging anteriorly, on peraeon segments 3-5, the pleon, telson and uropods mottled with black, on the posterior portion of the body the white ground colour becomes a brilliant green which however is soon lost in spirit (this last variety characteristic of large males from Sea Point).

Locality: Dassen Island, April, 1897 (R. M. Lightfoot); Hout Bay, 11/2/14 (K.H.B.); Sea Point, near Cape Town, 13/4/14 (K.H.B.); St. James, False Bay, March, 1901 (Dr. W. F. Purcell), May, 1912 (K.H.B.), and 9/2/14 (S. H. Haughton). ♂♂, ovigerous ♀♀ and juv. In crevices of rocks which are left dry at low-tide, where they harmonize well with the encrusting algae. (S.A.M. Nos. A2549, A2669, A2727, 9855, A2284 and A2668 respectively.)

Types (3 ♂♂) in the k.k. naturh. Hofmuseum in Vienna.

DYNAMENELLA AUSTRALIS, Richardson.

(Plate XXXV. E.)

1906. *Dynamenella australis*, Richardson. Proc. U.S. Nat. Mus. vol. 31 (1907), p. 15, fig. 19.

To Miss Richardson's excellent description the following details may be added: Epistome intermediate between that of *D. scabricula* and *D. kraussi*, main and secondary cutting-edges of the mandibles tridentate, ca. 8 spines in the spine-row, the smaller unguis on peraeopods distinctly and deeply bifid, the fur on inner margins of 3rd-6th joints thick but short, inner apex of peduncle of 1st-3rd pleopods with 6 hooked setae, outer ramus of pleopod 1 with an outstanding spine on outer margin, male stylet on pleopod 2 a little longer than ramus, slightly enlarged subapically as in *D. scabricula*, the whole body minutely granular and setose.

Length: 9 mm.; *breadth*: 4.5 mm.

Colour: "The body . . . is marked with patches of black over a light surface. The abdomen is dark, as well as the head, and there is a broad stripe of the darker colour on the inner uropod" (Richardson). In living specimens the colouration is as follows: Whitish with the lateral margins of the peraeon, the anterior margin of the head, and the antennae reddish, on peraeon segments 4 and 5 two dark red oblique stripes diverging posteriorly, and on segments 6 and 7 two similar stripes or patches converging posteriorly, thus forming a diamond-shaped mark on segments 4-7, the tubercles and the apices of telson and uropods pinky red.

Locality: Sea Point, near Cape Town. 28/12/13. (K.H.B.) 2 ♂♂. Hout Bay. 11/2/14. (K.H.B.) 1 ♂. (S.A.M. Nos. A2666 and A2670.)

Types in the U.S. National Museum.

DYNAMENELLA BICOLOR, n. sp.

(Plate XXXVI. A.)

Body very finely shagreened, glabrous. Peraeon with a transverse row of eight low tubercles on each segment, becoming obsolete anteriorly, but quite distinct on segments 5-7. Pleon with two low tubercles on 4th segment, telson with a transverse row of 4 tubercles near base, the two inner ones being smaller than the outer, beyond these 2 large submedian tubercles, a large tubercle just anterior to, and partly concealing in dorsal view the terminal notch, which is narrow and deep, slightly wider anteriorly than posteriorly.

First antenna reaching to posterior angle of 1st peraeon segment, flagellum 11-jointed.

Second antenna reaching about as far as first, flagellum 13-jointed. Epistome with sides straight, proximal end obtuse.

Mandibles as in *D. kraussi*, cutting-edge in left mandible obtusely tridentate, in right entire, secondary cutting-edge in left strongly chitinized, entire, in right pale and transparent, serrulate; spine-row with 5 spines.

Peraeopods, with thick but short fur on 3rd-6th joints; 1st peraeopod with a strong doubly-serrate spine-seta on inner apices of 4th-6th joints; smaller unguis feebly bifid; 7th peraeopod with several long setae on outer margin of 3rd joint and apices of 4th and 5th joints, outer margin 6th joint not setose.

Pleopods 1-3 with 3 hooked setae on inner apex of peduncle; pleopod 1 without outstanding spine on outer margin of exopod; pleopod 2 with male stylet $\frac{3}{4}$ as long again as ramus, stout, apex subacute.

Uropods scarcely extending beyond telsonic apex, both oval with rounded apices, subequal in length, the outer a little broader than inner.

Length: 8 mm.; *breadth*: 4.5 mm.

Colour: Head and peraeon segments 1-4 pinky brown, with a round whitish median patch extending over segments 2-4, and on these same segments 2-3 small round bluish-black spots on either side of the median patch; segments 5-7, telson, uropods and median portion of 4th pleon segment whitish, the telsonic tubercles pinkish; lateral portions of 4th pleon segment brown with 2 bluish-black spots.

Locality: Sea Point, near Cape Town. 15/11/13. (K.H.B.) 3 ♂♂; the largest specimen is in process of moulting, probably for the last time since the male stylet and penis are fully developed; the length of a full-grown specimen will therefore be a little more than that given above. (S.A.M. No. A2609.)

This species is close to *D. australis*, Richardson, in the general scheme of sculpturing of the pleon, but differs in the number of tubercles as well as in the following characters: The single row of tubercles on peraeon segment 7 and the presence of tubercles on the segments anterior to this, the shape of the uropods, the epistome and the details of the peraeopods and pleopods.

DYNAMENELLA KRAUSSI, n. sp.

(Plate XXXV. B.)

1843. *Sphaeroma savignii*, Krauss, D. Südafrik. Crust. p. 65. (non M. Edwards.)

1910. *Sphaeroma savignii*, Stebbing, Gen. Cat. S.A. Crust. p. 432.
(Quoted from Krauss.)

Body nearly parallel-sided, convex, smooth and glabrous.

Head as long as 1st peraeon segment, which is not much longer than the following segments, 7th segment entirely without trace of tubercles or lobes. Epimera not distinct from segments, continuing in same plane as segments, their free ends quadrate, 6th and 7th slightly produced backwards.

Pleon with 1st segment not concealed, even in median line, segments 1-4 without ornamentation. Telson convex, rounded, apex with a small semicircular notch, ventrally grooved.

First antenna, 1st and 2nd joints stout, upper and lower margins keeled, whole of inner face of 2nd and distal end of 1st with a median keel, 3rd joint slender, almost equal to 2nd, flagellum as long as 1st joint, 12-jointed.

Second antenna reaching to 3rd peraeon segment, 1st joint small, 2nd and 4th subequal, 3rd a little shorter and 5th a little longer, flagellum a little longer than peduncle, 19-jointed.

Epistome proximally truncate, lateral margins convex; upper lip distally straight with slight median prominence, setose.

Lower lip, lobes short and broad, apices rounded, setose.

Mandibles stout, cutting-edge blunt, entire, secondary cutting-edge in left tridentate, in right represented by 2 translucent plates with truncate and denticulate apices, spine-row with ca. 6 spines in left, ca. 8 in right, palp with 1st joint longest, 2nd and 3rd subequal.

First maxilla, outer plate with 7 spines, the 3 outer ones denticulate on their outer edges, the 4 inner ones on their inner edges, inner plate with 4 plumose setae.

Second maxilla, outer and middle plates each with 6 denticulate spines.

Maxilliped, inner plate shorter than 2nd joint in ♂, almost as long in ♀, with 1 coupling-hook.

First peraeopod stout, 3rd joint distally expanded externally, setulose, with 1 outstanding spine, 4th joint also expanded, 5th small, triangular, 6th ovate, inner margin of 4th, 5th and 6th joints with short, thick fur, inner margin of 7th with regular close-set denticles.

Second to seventh peraeopods similar but longer, 2nd and 3rd joints subequal, 4th not so prominently expanded, 5th oblong, 6th elongate-oblong. Secondary unguis on all peraeopods simple, entire.

Male appendages on 7th peraeon segment contiguous, stout, apically obtuse.

Marsupial lamellae overlapping in the middle line, the brood developed in internal pouches.

First to third pleopods with 6 hooked spines on inner apex of peduncle.

First pleopod with outer ramus a little longer than inner, without spine on outer margin, outer ramus and the uncovered portion of inner ramus indurated, pigmented.

Second pleopod with outer ramus half length of inner, male stylet stout, longer than ramus, apex acute.

Third pleopod with outer ramus $\frac{3}{4}$ length and $\frac{1}{2}$ width of inner ramus.

Uropods, inner ramus as long telson, oval, apex rounded, outer ramus smaller.

Length: ♂ 13 mm., ♀ 10 mm.; *breadth*: ♂ 6.5 mm., ♀ 5 mm. Male specimens from the Atlantic coast of the Cape Peninsula frequently attain a size of 16 mm. × 8 mm.

Colour: The ground colour varies from maroon to greenish brown, some specimens are uniform, but more frequently there is a row of lighter spots near the epimeral sutures and at the base of the uropods, and 3 or 4 lighter, rather irregular, patches down the middle of the back, one covering the posterior part of the head and anterior part of the 1st peraeon segment, another on 2nd-4th, another on 5th-7th peraeon segments, the fourth, if present, at the base of the pleon. These spots and patches are either whitish, or pale reddish, or green. Peraeopods not dark. Young specimens are usually uniform, but may have a whitish patch on the epimera and sides of the peraeon.

Locality: Green Point, near Cape Town, March, 1899 (Dr. W. F. Purcell), 1 ♂; Sea Point, near Cape Town, Nov. and Dec., 1913 (K.H.B.), ♂ ♂, ♀ ♀ and young; St. James, False Bay, April, 1901 (Dr. Purcell), and June, 1912 (K.H.B.), ♂ ♂, ♀ ♀; Buffels Bay, False Bay, 28/9/13 (K.H.B.), ♂ ♂, ♀ ♀ and young; Atlantic coast near Cape of Good Hope, 29/9/13 (K.H.B.), ♂ ♂, ♀ ♀; St. James, 15/2 14 (K.H.B.), ♂ ♂, ovigerous ♀ ♀ and young; Port Shepstone, Natal, Dec., 1912 (K.H.B.), ♂ ♂ and immature specimens. (S.A.M. Nos. 13548, A2604, 8829, A2448, A2520, A2528, A2678, and A2238 respectively.)

Krauss obtained his specimens from the Natal coast.

This species lives amongst the red and brown seaweeds near low-water mark.

DYNAMENELLA OVALIS, n. sp.

(Plate XXXV. D.)

1913. *Sphaeromidae inc. sed.* (2) Tattersall, Tr. Roy. Soc. Edinb. vol. 49, pt. 4, p. 888, pl. figs. 9, 10.

Very similar to *D. kraussi*, but well differentiated by its smaller size and oval shape, the width being $\frac{2}{3}$ of the length instead of $\frac{1}{2}$ as in the latter. Also the body is much flatter and the epimera do not continue in the same curve as the dorsa, there being a distinct though shallow groove between them. The notch at the end of telson is shallower.

Epistome rather stouter, inner margins of arms convex, not straight or slightly concave, ends of the arms squarely, not obliquely, truncate.

Third joint of 1st peraeopod not strongly expanded at outer apex.

First to third pleopods with 4 hooked spines on inner apex of peduncle. Male stylets not developed externally, ♂ being immature.

In other respects resembling *D. kraussi*.

Length: ♂ 7.5 mm., ♀ 5.5 mm.; breadth: ♂ 5 mm., ♀ 3 mm.

Colour: Olive-brown, with fine darker mottlings and minute black specks, peraeon with scattered metallic golden specks, peraeopods not dark.

Locality: St. James, False Bay. June, 1912. (K.H.B.) 1 ♂, 3 ovigerous ♀ ♀, 2 juv. (S.A.M. No. A2444.)

Dr. Tattersall has kindly confirmed the identity of my specimens with the single ♀ obtained by the "Scotia" in Saldanha Bay.

DYNAMENELLA MACROCEPHALA (Krauss).

(Plate XXXV. C.)

1843. *Sphaeroma macrocephala*, Krauss, Die Südafrik. Crust. p. 65.
 1910. " " Stebbing, Gen. Cat. S.A. Crust. p. 432. (*Sphaeromidae incertae sedis.*)

Krauss' brief description is as follows: "Body somewhat flattened, smooth, light green with darker spots. Head very broad and nearly as long as first two thoracic segments. Abdomen very convex, obscurely bituberculate, triangular, the apex shallowly notched. Branches of the uropods as long as the abdomen, the upper [= inner] oblique and rounded, the lower [= outer] elongate oval. In algae on the Natal coast. Length 2 lines."

After examining, as far as possible, Krauss' exsiccated type specimen, I decided that the characters were not definite enough to separate it from *D. kraussi* (the *Sphaeroma savignii* of Krauss). It might very well be a young and abnormal specimen of that species. Since then, however, specimens have been collected in Table Bay, which prove to be adult and which show the bituberculate character of the telson very much more pronounced than in Krauss' specimen.

Though described as "smooth," the body is in reality (both in the type specimen and the Table Bay specimens) very finely granular. In respect to convexity it is intermediate between *D. kraussi* and *D. ovalis*.

The following details are taken from the fresh specimens:—

First antenna scarcely reaching middle of first peraeon segment, the keel on the upper margin of 2nd peduncular joint very prominent, flagellum 9-jointed.

Second antenna reaching nearly to middle of 3rd peraeon segment, flagellum 16-jointed.

Epistome as in *D. ovalis*, the proximal margin scarcely marked off from the lateral margins.

First peraeopod, third joint not very strongly expanded on outer distal margin.

Male appendages on 7th peraeon segment contiguous, stout, apices blunt.

First to third pleopods with 4 hooked spines on inner apex of peduncle.

Length: 6.5 mm.; *breadth*: 3.5 mm.

Colour: Grey with greenish or brownish spots and streaks, the anterior portion of pleon usually darker than, the telson lighter than, the peraeon, 2nd joint of all peraeopods dark brownish.

Locality: Sea Point, near Cape Town. 15/11/13. (K.H.B.) ♂♂, ovigerous ♀♀ and young. (S.A.M. No. A2608.)

Type in the Stuttgart Museum.

DYNAMENELLA DIOXUS, n. sp.

(Plate XXXIV. E.)

Body finely granular, with long scattered hairs, most numerous on the epimera. First peraeon segment nearly as long as head and longer than the other segments. Seventh segment with two large submedian processes extending to middle of the telson and almost completely concealing the anterior segments of the pleon.

Telson with 2 small, round, rather widely-spaced tubercles. Apex with a V-shaped foramen, wider anteriorly, with a median lobe.

In the ♀ there are no processes on the 7th peraeon segment and the median lobe in the telsonic foramen is smaller.

First antenna, first joint nearly 3 times length of 2nd, exterior margins of 1st and 2nd setose, 3rd joint slender, flagellum equal to 1st peduncular joint, 6-jointed.

Second antenna, peduncle a little longer than that of 1st antenna, 1st joint shortest, 2nd and 4th subequal, 5th longest, flagellum equal to peduncle, 7-jointed.

Upper lip triangular, distal margin slightly convex, setose, epistome short, rounded proximally.

Lower lip with rather broad lobes, apices rounded, setose.

Mandibles, cutting-edge quadridentate, secondary cutting-edge tridentate, stronger in left than right, spine-row with 7 spines, molar oblique, denticulate, setose on posterior margin, palp with 2nd and 3rd joints subequal, a little shorter than 1st.

First maxilla, outer plate with 8 spines, the inner ones denticulate, inner plate with 4 plumose setae.

Second maxilla, outer and middle plates with 5-6 denticulate setae, inner plate not much broader, with numerous plumose setae.

Maxilliped, 2nd joint, strongly setulose on outer margin, inner plate not quite as long, broadest in middle, apex rounded, 1 coupling-hook, 4th-6th joints strongly lobed internally and, like the apex of the slender 7th joint, setose.

First peraeopod, 3rd joint not strongly expanded on exterior margin, outer and inner margins of all joints setulose, inner apices of 4th-6th joints each with 1 large serrulate spine, unguis strong, no secondary unguis but a spine in its place.

Second peraeopod longer and more slender, with secondary unguis.

Remaining peraeopods rather stouter, except the 7th, which is about as slender as the 2nd.

Male appendages on 7th peraeon segment close together, tapering, apices subacute.

First to third pleopods with 3 hooked setae on inner apex of peduncle.

Second pleopod, outer ramus shorter than inner, male stylet somewhat enlarged distally, apex subacute, extending beyond inner ramus.

Third pleopod, outer ramus shorter than inner, one-jointed.

Fourth and fifth pleopods, both rami branchial, with about 6 folds.

Uropods, inner ramus as long as telson, apex obliquely truncate,

outer ramus a little shorter, obovate, apex rounded, distal margins of both rami minutely crenulate and setose.

Length : 3.5 mm. ; *breadth* : 1.3 mm.

Colour : Purplish brown (turning pinkish in spirits) with an hour-glass-shaped light patch on back of peraeon.

Locality : Sea Point, near Cape Town. 15/11/13. (K.H.B.) One adult and 1 immature ♂, and 2 nonovigerous ♀♀. St. James, False Bay. 15/2/14. (K.H.B.) 1 nonovigerous ♀. Low-tide. (S.A.M. Nos. A2610 and A2682.)

GEN. CYMODOCELLA, Pfeffer.

1887. *Cymodocella*, Pfeffer, Jahrb. Wiss. Anst. Hamburg, vol. 4, pp. 18, 20, 69.
1905. ,, Stebbing in Herdman's Ceylon Pearl Fish. Suppl. Rep. 23, p. 30.
1905. ,, Hansen, Q. J. Microsc. Sci. vol. 49, pt. 1, pp. 80, 107, 126.
1910. ,, Stebbing, Gen. Cat. S.A. Crust. p. 430.
1910. ,, Hodgson, Nat. Antart. Exp. vol. 5, p. 31.

Besides *C. tubicauda*, Pfeffer (l.c.), the only other species of this genus is *C. algoense* (Stebbing) (1875, Ann. Mag. Nat. Hist. (4) 15, p. 186, pl. 15 A, figs. 3, 3a). The latter was described from a specimen $\frac{1}{12}$ inch in length, which appears to be immature, judging from the shape and size of the posterior peraeon segments and the uropods; also the circular foramen on the telsonic apex is incomplete and not directed dorsally. Although both the species described below are very common at the Cape, the smallest specimens I have yet come across are $\frac{1}{8}$ inch in length and cannot be correlated with *C. algoense*. Until therefore further and adult specimens of *C. algoense* are obtained from Algoa Bay (if the original specimen did in reality come from that locality, on which point there is a little doubt), the name *algoense* cannot be applied to either of the present species.

From *C. tubicauda*, Pfeffer, as described by Hodgson (l.c. p. 31) and figured by him (Crust. of the "Southern Cross," pl. 33, fig. 2), both the Cape species are abundantly distinct. Thus *C. tubicauda* has small eyes, both rami of the uropods are lanceolate, not oval, the outer ramus of 1st pleopod is a little longer than inner, no mention is made of the 2nd peraeopod being much more slender than the other peraeopods, nor of the pectinate spines on apex of 5th joint of 7th peraeopod, no mention is made in the description

of tubercles on the telson, though from the figure there would appear to be 4 such, the general shape is more oval.

C. tubicauda seems to be essentially an antarctic form, not having been found north of 50° S. latitude.

CYMODOCELLA SUBLEVIS, n. sp.

(Plate XXXVI. B.)

Body very finely shagreened, visible chiefly on posterior margins of peraeon segments. Head with eyes of the normal Sphaeromid size. Seventh segment of the peraeon narrower than, and laterally overlapped by, the 6th segment. Epimera not distinctly separated from segments, almost vertical. Pleon with 1st segment concealed beneath 7th peraeon segment, 4th segment with 2 very obscure tubercles, telson convex basally, with 2 obscure tubercles, lateral margins bent inwards ventrally forming a tube curving upwards with the apical foramen directed dorsally.

First antenna, 1st joint stout, twice as long as 2nd or 3rd, which are subequal, 3rd more slender than 2nd, flagellum 7-jointed, equal to 1st and 2nd peduncular joints together.

Second antenna, 1st and 3rd joints subequal, 2nd a little longer, 4th and 5th a little longer than 2nd, subequal, flagellum 10-jointed, as long as peduncle.

Epistome triangular, proximally narrow, widening rapidly but embracing hardly more than the basal third of upper lip, which is broader than long, distal margin rounded.

Lower lip with lobes short, broad, apically rounded.

Mandibles, cutting-edge bidentate, secondary cutting-edge well developed in left, spine-row with ca. 6 spines, molar strong, oblique, denticulate, palp slender, 1st joint slightly longer than 2nd, 3rd shorter.

First maxilla, outer plate with 9-10 spines, the inner ones denticulate, inner plate with 4 plumose setae.

Second maxilla, outer and middle plates each with 4 minutely denticulate spine-setae.

Maxilliped, inner plate equal to 2nd joint, with 1 coupling-hook, 4th, 5th and 6th joints internally lobed.

First peraeopod with 4th joint produced on outer apex, with 1 strong spine, inner apices of 4th, 5th and 6th joints each with 1 strong doubly pectinate spine, fur on these same joints not very thick or long.

Second peraeopod longer and much more slender than first, 3rd and

6th joints subequal, nearly equal to 2nd joint, 5th joint elongate, as long as inner margin of 4th, inner apices of 4th and 5th joints with 1 long seta.

Third to seventh peraeopods as stout as 1st peraeopod, but increasing in length, 5th joint in 7th peraeopod with an apical circle of long pectinate spines, outer margin of 3rd joint with 2 long spines and 2 shorter ones.

Male appendages on 7th peraeon segment contiguous, very long, narrow and tapering to fine points.

First to third pleopods with 3 hooked setae on inner apex of peduncle; inner ramus of 1st pleopod half as long again as outer; both rami of 2nd pleopod subequal, male stylet $2\frac{1}{2}$ times as long as ramus, rather stout basally, tapering gradually to a fine point; inner ramus of 3rd pleopod rather shorter than the unjointed outer ramus.

Uropods, rami not quite reaching telsonic apex, outer a little shorter than inner, lamellar, obovate, with rounded apices, outer margin of outer ramus and inner margin of inner ramus thickened.

Length: 3.3 mm.: *breadth*: 1.75 mm.

Colour: Dark purplish brown, either uniform or with a whitish telson.

Locality: Sea Point, near Cape Town. 29/11/13. (K.H.B.)
3 ♂♂, 1 ovigerous ♀ and several immature. (S.A.M. No. A2623.)

CYMODOCCELLA PUSTULATA, n. sp.

(Plate XXXVI. C.)

Body covered with granules, which are strongest on the peraeon segments, weakest on the head. Seventh peraeon segment narrower than 6th, the posterior margin strongly bilobed (the lobes rather gibbous but not tuberculate). Fourth segment of pleon with 2 small submedian tubercles, telson with 4 tubercles at base, the 2 middle ones largest and rather elongate, behind these 2 submedian tubercles, apex tubular, upturned, the foramen directed dorsally. The females and immature specimens are less strongly tuberculate and the 7th peraeon segment is scarcely bilobed.

Flagella of 1st and 2nd antennae respectively 10 and 11-jointed.

Male appendages on 7th peraeon segment moderately long, contiguous, apices acute.

Male stylet on 2nd pleopod extends half its own length beyond apex of ramus, its apex blunt and slightly enlarged, inner ramus half as long again as outer.

In other respects this species resembles *C. sublevis*. The young (2·5–3 mm.) of the two species are difficult, if not impossible, to separate except by the colouration, which seems quite distinctive.

Length: 4·5 mm.; *breadth*: 2·2 mm.

Colour: Greenish or reddish brown; in young specimens the head, 1st peraeon segment and pleon (either the whole or only the anterior portion) are dark, the intervening portion light, sometimes a reddish band across the lighter peraeon segments; the older the specimens, the more they tend towards a uniform colouration.

Locality: St. James, June, 1912; and Buffels Bay, 28/9/13 (both in False Bay). (K.H.B.) 2 ♂♂; Sea Point, near Cape Town. 15/11/13. (K.H.B.) ♂♂, ♀♀ and young from 2·5 mm. in length upwards. (S.A.M. Nos. A2447, A2548 and A2607 respectively.)

FAMILY IDOTEIDAE.

For references see Stebbing, S.A. Crust. pt. 1, p. 51, 1900, and pt. 2, p. 55, 1902. Also: Barnard, Ann. S.A. Mus. vol. x. pt. 7, p. 203, 1914.

GEN. PARIDOTEA, Stebbing.

1900. *Paridotea*, Stebbing, S.A. Crust. pt. 1, p. 52.

1909. „ Chilton, Subant. Is. New Zeal. vol. 2, p. 660.

PARIDOTEA RETICULATA, n. sp.

(Plate XXXVI. D.)

Body parallel-sided, smooth, not very convex. Head with frontal margin concave with median notch, eyes irregularly round, black. Peraeon with postero-lateral angles of segments 1–3 rounded, of segments 4–7 subacute. Epimera of 2nd and 3rd segments narrow, the former a little more than half the length of its segment, the latter $\frac{2}{3}$ length of its segment; epimera of 4th to 6th segments as long as their segments, their postero-lateral angles subacute; epimeron of 7th segment a little longer than its segment, postero-lateral angle acute. All the epimera are without lateral keels, the upper surface passing into the ventral surface without a break. The sterna of 4th–7th segments are quadrate, with postero-lateral angles rounded, posterior margin emarginate with (on 6th and 7th sterna) a small median and a small submedian notch. Pleon nearly equal to the

6 posterior peraeon segments together, consisting of a single segment with 3 lateral sutures, the basal one of which is very faintly marked up to the median line, where however it disappears entirely. Telson with straight sides and a low rounded median keel, on either side of which the telson is nearly flat, not convex; the apical margin between the acute postero-lateral angles is straight or very slightly convex; a short but distinct keel runs along the postero-lateral angles.

First antenna reaching to end of 2nd peduncular joint of second antenna, resembling that of *P. ungulata* (Pallas).

Second antenna reaching to middle or posterior margin of 5th peraeon segment, inner apex of 3rd, 4th and 5th peduncular joints produced, flagellum with from 24 joints in a small specimen to 32 in the largest specimens.

The mouth parts resemble those of *P. ungulata* except that the lateral margins of the epistome are angular, not evenly convex, and the inner lobe of the first maxilla has only 3 plumose setae.

Peraeopods stout, 6th joint of 1st peraeopods setose on inner margin, with a short spiniform tubercle near the base; 6th joint of 2nd and 3rd peraeopods not setose, with spine near base and 2-3 setae at apex, in ♀ the basal spine is absent but represented by a tuft of 2-3 setae; 6th joint of remaining peraeopods with 2 tufts of 2-3 setae, one near base, the other at apex; 3rd and 4th joints not produced externally on any of the peraeopods.

Pleopods as in *P. ungulata*.

Uropods with strong rounded longitudinal keel on peduncle, ramus $\frac{2}{3}$ as long as broad, apical margin truncate.

Length: 63 mm.; *breadth*: 16 mm.

Colour: Deep orange-brown with black reticulations, a median stripe on peraeon and base of pleon and telson and the postero-lateral angles of telson green; peduncular joints of second antennae and the joints of the peraeopods with dark apical bands.

Locality: Table Bay (washed up on beach), April, 1913. 1 ♂ and 1 ♀ with young. (L. Péringuey, jun.); Table Bay. 26/3/96. 1 immature ♀. s.s. "Pieter Faure." Sea Point, near Cape Town. 13/4/14. (K.H.B.) ♂♂, ovigerous ♀♀ and juv. On the stalks and fronds of the Sea Bamboo (*Ecklonia buccinalis*) at low-tide. (S.A.M. Nos. A2645, A7 and A2724.)

Although on a cursory glance this species appears very similar to *P. ungulata*, it is nevertheless easily separated by a number of characters, viz.: the lesser convexity of the body, the shape of the epimera and sterna (in *P. ungulata* the sterna are rounded posteriorly, without the postero-lateral angles and with only a median notch), the

composition of the pleon, the keel on the telson and the shape of the telsonic apex, the length of the 2nd antennae and the produced peduncular joints of same (out of many examples of *P. unguolata* I have not seen one in which the 2nd antennae exceed the posterior margin of the 3rd peraeon segment), the inner lobe of the 1st maxilla (*P. unguolata* has 5 plumose setae), the nonproduced 3rd and 4th joints of the peraeopods and the armature of the 6th joint, the keel on the peduncle and the shape of the ramus of the uropods (in *P. unguolata* the ramus is nearly square, not evidently broader than long), and lastly the colouration.

Young specimens taken from the brood pouch show the distinctive produced joints of the peduncle of the 2nd antennae. The telsonic apex has a well-marked semicircular notch, and the postero-lateral angles are rounded. The young of *P. unguolata*, also from the brood pouch, have the telsonic apex only slightly emarginate.

As to the genus in which this species should be placed, it will be noticed that it differs from *P. unguolata*, the type species, in the number of setae on the inner plate of the 1st maxilla and the composition of the pleon. In the possession of 3 lateral sutures on the pleon it agrees with *Glyptidotea*, Stebbing, and *Pentias*, Richardson; with the former it also agrees as regards the 1st maxilla (no description has been given of the 1st maxilla of *Pentias hayi*, Richardson, the only species), but it differs from both as regards the epimera.

Inasmuch as it agrees with *Paridotea* in all except these two features, and taking into account the fact that the pleon appears to be subject to considerable variation, even within the same species (see Chilton's discussion in Tr. New Zeal. Inst. vol. 22, 1890, p. 199, on this feature in *Idotea (Paridotea) peronii*, M. Edw.), there can be little doubt that it should be placed in the genus *Paridotea*.

PARIDOTEA RUBRA, n. sp.

(Plate XXXVII. A.)

Body rather flat, smooth, glabrous. Head broader than long, anterior margin arcuate, antero-lateral angles acute, eyes about in middle of lateral margins, dark. Peraeon, 1st segment wider than head, antero-lateral angles rounded, postero-lateral angles of 2nd-7th segments rectangular. Epimera as long as their segments, except those of 2nd and 3rd segments, large, rounded, postero-inferior angles of those of 2nd-5th segments rounded, of 6th rectangular and of 7th subacute. Posterior margins of sterna nearly straight, with rather deep median incision. Pleon with 1 complete and 2 incom-

plete lateral sutures, lateral margins sinuate, apex excavate, postero-lateral angles rounded.

First antenna reaching to middle of antepenultimate peduncular joint of 2nd antenna, flagellum with 8 groups of setae and sensory filaments.

Second antenna reaching to posterior margin of 3rd peraeon segment, peduncular joints not produced, 2nd and 3rd joints subequal, 4th and 5th joints subequal, flagellum 21-jointed.

Upper lip rounded, strongly setose.

Lower lip, lobes broad, rounded, strongly setose.

Mandibles, cutting-edge 4-dentate, secondary cutting-edge tridentate, spine-row with ca. 7 spines, molar quadrate in left, oblique in right.

First maxilla, outer plate with 10 spines, the 2 innermost denticulate, inner plate with 3 plumose setae.

Second maxilla, outer and middle plates with 3 setae, inner plate twice as broad as others.

Maxilliped 7-jointed, epipod reaching to end of 4th joint, apex incurved.

Peracopods all similar, stout, 6th joint with 1 stout bifid tubercle near base and 2 setae just beyond, palm of 6th joint of 1st peraeopod has in addition scattered setae, unguis unequal.

First and second pleopods with ca. 8 hooked setae on inner apex of peduncle, male stylet on 2nd peraeopod nearly as long as ramus, apex acute.

Uropods, ramus short, broader than long, especially in ♀, apex truncate, sloping inwards, no setae on outer apex of peduncle.

Length: ♂ 47 mm., ♀ 38 mm.; *breadth*: ♂ 15 mm., ♀ 13 mm.

Colour: Uniform deep red-brown, with a darker median spot on anterior margin of peraeon segments 2-7.

Locality: Sea Point, near Cape Town. 28/12/13. (K.H.B.) 2 ♂♂, 1 ♀ with embryos, and several immature. (S.A.M. No. A2664.). Amongst the matted red seaweed growing on the stems of the Sea Bamboo (*Ecklonia*) at low-water mark.

This species agrees with *P. reticulata* in having 3 plumose setae on inner plate of 1st maxilla.

PARIDOTEA FUCICOLA, n. sp.

(Plate XXXVI. E.)

Body narrow, parallel-sided in ♂, middle segments of peraeon slightly wider in ♀, smooth, glabrous. Head with anterior margin

slightly emarginate, antero-lateral angles not prominent, eyes in middle of lateral margin, dark. Peraeon with both anterior and posterior margins of 1st segment concave, 1st segment in middle line $\frac{2}{3}$ length of 2nd, 2nd-4th subequal, 5th-7th subequal and as long as 1st. Epimera of 2nd-5th segments $\frac{2}{3}$ as long as their segments, not quite reaching posterior margin, those of 6th and 7th segments as long as their segments. Pleon equal in length to last 4 peraeon segments together, with 1 complete and 2 incomplete lateral sutures, slightly tapering to a rounded apex with a small shallow semicircular notch.

First antenna reaching to middle of 3rd peduncular joint of 2nd antenna, basal joint stout, enlarged, nearly 3 times as broad as 2nd joint, 2nd and 3rd subequal, flagellum as long as 1st joint, with ca. 13 groups of sensory filaments in pairs and a few setules.

Second antenna reaching to, or a little beyond, end of 2nd peraeon segment, 1st joint smaller than 2nd, excised on outer apical margin, 2nd-4th joints subequal, 5th a little longer, flagellum a little longer than peduncle, 18-21-jointed.

Upper lip broader than long, distal margin straight or slightly emarginate, setiferous.

Lower lip, lobes stout, inner margin oblique, with strong stout setae.

Mandibles, both geniculate, cutting-edge 4-dentate, secondary cutting-edge tridentate in left, bidentate and weaker in right, spine-row with ca. 4 spines, molar denticulate with setules on posterior margin.

First maxilla, outer plate with 7 spines, inner plate with 3 plumose setae.

Second maxilla, outer and middle plates with 6 spines.

Maxilliped narrow, 7-jointed, 3rd joint very short, 5th produced at inner apex, 6th nearly as long as 2nd, 7th semicircular, short, inner plate as long as 2nd joint, with 1 coupling-hook, epipod reaching to end of 4th joint, narrow, lanceolate, apex blunt, slightly incurved.

Peraeopods not very slender; 1st peraeopod shorter than rest, 6th joint oblong, not ovate, nor enlarged, inner margin with 3 large serrate spines and numerous pectinate setae.

Second peraeopod, 6th joint with 2 large serrate spines but no pectinate setae. Third peraeopod similar to 2nd, but only 1 spine on 6th joint.

Fourth to seventh peraeopods with thick fur on inner margin of 4th-6th joints.

Ungues in all the peraeopods equal and strong, with a tuft of setae at their base.

Male appendages on 7th peraeon segment contiguous, short, apices blunt.

Marsupial plates overlapping.

Pleopods narrow; 4 hooked spines on inner apex of peduncle, male stilet on 2nd pleopod half as long again as ramus, slender, scarcely tapering, apex obliquely truncate.

Uropods narrow, nearly parallel-sided, suture between peduncle and ramus oblique, width of ramus equal to inner margin, apex truncate, slightly emarginate, no seta on outer apex of peduncle.

Length: ♂ 22 mm., ♀ 17 mm.; *breadth*: ♂ 3.5 mm., ♀ 4 mm.

Colour: Greenish brown, often with a darker discontinuous median stripe on peraeon segments.

Locality: Smitswinkel Bay (False Bay). 5/7/12. (K.H.B.) 3 ♂♂, 1 ♀ and 2 young; Buffels Bay (False Bay). 28/9/13. (K.H.B.) 3 ♂♂, 1 ♀ with ova; Atlantic coast near Cape of Good Hope. 29/9/13. (K.H.B.) ♂♂, ♀♀ with ova, and young; St. James, False Bay. 15/2/14. (K.H.B.) ♂♂, ♀♀ with ova. (S.A.M. Nos. A2469, A2525, A2526 and A2684 respectively.)

Found on brown seaweeds at low-water mark.

This species appears to be very close to *Idotea elongata*, Miers, although there is considerable difference in the shape of the telsonic apex. This difference is noticeable in comparing the Cape species with Miers' figure (Cat. N.Z. Crust. 1876, p. 93, pl. 2, fig. 3), and Dr. Calman informs me that Miers' figure is a very fair representation of the actual type specimens. I am unable to give a detailed comparison of the appendages owing to a want of specimens of *I. elongata*.

Dr. Calman also informs me that the type specimens of *I. elongata* in the British Museum have 1 complete and 2 incomplete basal sutures on the pleon and are therefore referable to *Paridotea*. This does not quite agree with Miers' description (J. Linn. Soc. 1881, vol. 16, p. 54). "Postabdomen . . . having usually indications of a lateral suture . . ." Chilton has commented on the variability of these sutures (Subant. Is. N.Z. 1909, vol. 2, p. 658) and says of specimens coming, like the type specimens, from the Auckland Islands: "The lateral suture on the pleon is often very indistinct, so that the pleon is almost or quite uniaarticulate."

Seeing however that the type specimens show the distinctive

character of *Paridotea*, I think it legitimate to include *elongata* in this genus, which will therefore contain the following species:—

- Paridotea ungulata* (Pallas). Type species.
 „ *peronii* (M. Edw.).
 „ *elongata* (Miers).
 „ *rubra*, n. sp.
 „ *reticulata*, n. sp.
 „ *fucicola*, n. sp.

Among the four common Cape specimens, *P. ungulata*, *rubra*, *reticulata*, and *fucicola*, I have found no variation in the distinctness of the pleon sutures.

FAMILY ASTACILLIDAE.

1908. *Astacillidae*, Stebbing, S.A. Crust. pt. 4, p. 50.

1911. *Arcturidae*, Koehler, Bull. Inst. Océan. Monaco, No. 214, p. 1.

1914. *Astacillidae*, Barnard, Ann. S.A. Mus. vol. x. pt. 7, p. 206.

IDARCTURUS, n. gen.

Body not geniculate, head fused with 1st peraeon segment, all the segments of the pleon fused into one piece, 4th peraeon segment longer than the others in the female only, but not markedly elongate, antennae, mouth parts, peraeopods, pleopods and uropods as in *Astacillidae*, ♂ appendage on 7th peraeon segment single, no appendage on 3rd or 5th segments of ♂, 3 pairs of marsupial plates.

This genus forms a transition from the typical *Astacillids* to the *Pseudidoteids* and *Amesopus*, themselves intermediate between the *Astacillidae* and *Idoteidae*. But that it must be placed in the former family and not the *Pseudidoteidae* or *Amesopidae* is clearly shown by the appendages, especially the anterior peraeopods.

IDARCTURUS PLATYSOMA, n. sp.

(Plate XXXVII. B.)

Body flattened, not geniculate, resembling an *Idoteid*, smooth, glabrous. Head united with 1st peraeon segment, but the sutures distinct laterally, anterior margin excavate, eyes oval, in middle of lateral margins. Peraeon segments 2 and 3 subequal, a little longer

than 1st, 4th segment in ♀ as long as head and first 2 segments together, not laterally expanded, segments 5-7 subequal, as long as first 3 segments together, in ♂ 4th segment as long as 2nd and 3rd together, segments 5-7 subequal, twice as long as 4th and thrice length of 3rd. Epimera distinct except on 1st segment, narrow, inferior margin of those on 5th-7th segments angular. Pleon nearly equal to last two segments of peraeon together, all segments completely fused without trace of sutures, but in ♂ the basal portion is a little wider than the distal part, tapering very slightly to the rounded, entire apex.

First antenna scarcely reaching end of 2nd peduncular joint of 2nd antenna, 1st joint very stout, as broad as long, 2nd joint $\frac{1}{3}$ width of, and $\frac{1}{2}$ length of 1st joint, 3rd joint a little slenderer and shorter, flagellum 1-jointed, as long as 2nd peduncular joint, apex with 3 setae and 2 large sensory filaments.

Second antenna reaching to end of 4th peraeon segment, first 2 joints short, subequal, 3rd joint equal to 1st and 2nd together, 4th joint half as long as 3rd, 5th joint a trifle shorter than 4th, flagellum a little shorter than 5th joint, 4-jointed in ♂, 1st joint longest, 2nd-4th subequal, 5th small and ending in a small curved claw-like process, all joints with apical setae.

Upper lip transverse, distal margin rounded.

Lower lip, lobes short with rounded-truncate apices, inner angles with stout setae.

Mandibles stout, straight, cutting-edge and secondary cutting-edge in both tridentate, apparently no spine-row, molar strong, reaching to level of end of cutting-edge, palp absent.

First maxilla, outer plate with 10 straight simple spines, inner plate with 3 plumose setae.

Second maxilla, outer and middle plates each with 4 setae.

Maxilliped, 2nd joint short and stout, inner plate equal to 2nd joint, apex truncate with a few plumose setae, 2 coupling-hooks in middle of inner margin, 5th joint oval, equal to 2nd joint in length, 6th $\frac{1}{2}$ length of 5th, 7th $\frac{1}{3}$ length of 6th, 4th-6th joints setose internally, epipod in ♀ reaching base of 5th joint, rounded, broader than long, backward projecting plate on 1st joint in ♀ very large.

First peraeopod short, closing over the maxilliped, 2nd joint longest, 5th and 6th subequal, rather longer than 4th, 7th short and slender, equal to width of 6th joint, 4th-6th joints with thick fringe of long serrulate setae on inner margin, 7th joint with a few terminal setae.

Peraeopods 2 to 4 similar but becoming successively longer, 2nd

joint stout in peraeopods 2 and 3, longer in peraeopod 4, 4th-6th joints subequal in peraeopod 2, in peraeopods 3 and 4 4th joint a little longer than 5th and 6th, inner margins of 3rd-6th joints with fringe of long setae, 7th joint minute, ending in a curved unguis.

Peraeopods 5 to 7 subequal in length and similar to one another, stout, 2nd joint longest, twice as long as wide, outer margin with blunt tubercles (obscure on peraeopod 5), 5th joint shortest except 7th, which is triangular and ends in a short but strong curved unguis, with a strongly chitinized "pad" on inner margin before the unguis.

Male appendage on 7th peraeon segment single, tapering gradually to a subacute apex.

Marsupial plates 3 pairs, on segments 2-4, that on 4th segment has no inset piece, but posterior margin is setose, inferior margin simple.

First pleopod with oblique row of 3 (♂) or 4 (♀) hooked setae on middle of peduncle, rami as long as peduncle, outer ramus in ♂ with long setae in middle.

Second pleopod with 3 hooked setae near inner apex of peduncle, rami longer than peduncle, male stylet a little longer than ramus, distal end enlarged, curved outwards and ending in a finely pointed apex.

Third to fifth pleopods with rami lanceolate, covering ramus shorter than the other, with a long plumose setae near apex on outer margin.

Uropods narrow, proximal end rounded, tapering gradually distally, exposed ramus small, triangular, longer than broad, outer margin slightly concave, margins finely setose, concealed ramus very small with 3 terminal setae and 1 subterminal on outer margin.

Length: ♂ 5 mm., ♀ 10 mm.; *breadth*: ♂ 1 mm., ♀ 2 mm.

Colour: Uniform claret-colour, 5th joint and flagellum of 2nd antennae with lighter bands, eyes black.

Locality: Atlantic coast of the Cape Peninsula near the Cape of Good Hope and near Cape Town. 29/9/13 and 15/11/13. (K.H.B.) 2 ♂♂, several ♀♀, some ovigerous, and young from 3 mm. upwards. On red seaweed at low-tide. (S.A.M. Nos. A2527 and A2600.)

In immature specimens peraeon segments 4-7 are subequal, and specimens under 4 mm. in length lack the peraeopods on 7th peraeon segment.

The specific name is in allusion to the flattened shape of the animal, in consequence of which it is exceedingly difficult to see; it is the exact colour of the weed, lies along the smaller branches and clings very tenaciously.

FAMILY JAERIDAE.

1910. *Jaeridae*, Stebbing, J. Linn. Soc. Lond. Zool. vol. 31, No. 207, p. 224. (References.)

GEN. JAERA, Leach.

1814. *Jaera*, Leach, (? Tr. Linn. Soc. vol. 11, p. 373), Edinb. Encycl. vol. 7, p. 434.
1825. ,, Desmarest, Consid. Gen. Crust. p. 316.
1840. ,, M. Edwards, Hist. Nat. Crust. vol. 3, p. 147.
1840. *Jaeridina*, id. ibid. p. 150.
1887. *Jaera*, Pfeffer, Jahresber. Hamb. wiss. Anst. vol. 5, p. 134.
1893. ,, Stebbing, Hist. Crust. p. 379.
1897. *Jaera*, J. O. Sars, Crust. Norw. vol. 2, p. 103.
1905. *Jaera*, Richardson, Bull. U.S. Nat. Mus. No. 54, p. 449.
1905. ,, Tattersall, Fish. Ireland Sci. Invest. 1904, No. 2, p. 51.

JAERA SERRATA, n. sp.

(Plate XXXVIII. A.)

Body glabrous except for a few scattered setae on the sides. Head without rostrum, anterior margin nearly straight, antero-lateral angles acutely produced, lateral margins with six teeth and scattered setae, eyes oval, black.

Peraeon segments subequal, antero-lateral angles of first segment each with a stout spine, no marked gap between the anterior four segments and the posterior three.

Pleon nearly equal to last three peraeon segments, longer than broad, oval, lateral margins with scattered setae and towards apex with six teeth, notches for uropods well marked, leaving a median point.

First antenna reaching to end of 5th peduncular joint of second antenna, 1st joint very stout, 2nd and 3rd slender, not distinguished from the 3-jointed flagellum.

Second antenna about twice length of head, 3rd joint with a distinct scale bearing 2 setules, 5th and 6th joints subequal, flagellum as long as peduncle, 15-jointed.

Upper lip as in *J. marina*.

Mandibles as in *J. marina*, the molar very prominent, the joints of the palp slightly increasing in length from the first.

Maxillipeds, 4th and 5th joints larger than 3rd or 6th joints, but

not greatly expanded, epipod with outer margin angular not rounded as in *J. marina*, reaching to middle of 5th joint.

Peraeopods all similar, the posterior ones rather longer, the first apparently uniunguiculate, the rest biunguiculate.

First pleopods elongate, outer angle of peduncle produced into a long thin point exceeding in length the rami, which are well developed with blunt setose apices.

Second pleopods, peduncle ovate, apically acute, setose on apical distal margin, outer ramus large, bilobed, near apex of peduncle, inner ramus (= penial filament) very bulbous at base, the distal portion narrowing to a long thread nearly twice length of pleopod.

Third pleopods, inner ramus with 2 apical setae, outer ramus about as long, 2-jointed, the second joint setose.

Fourth pleopods, inner ramus with 2 apical setae, outer ramus shorter, narrow, pointed, 1-jointed.

Fifth pleopods, small, only one ramus (with apical setae?).

Uropods short, peduncle stout, setose around the bases of the rami which are elongate lanceolate, the inner longer than the outer.

Length: 2 mm.; *breadth*: .5 mm.

Colour: Whitish.

Locality: Sea Point, near Cape Town. 29/11/13. (K.H.B.) 1 ♂ (S.A.M. No. A2633.)

Though assigned to the genus *Jaera* this species is not in full accord with the definition of that genus or the figures of *J. marina* given by Sars. Firstly, the presence of a distinct scale on the third peduncular joint of the second antennae brings it into harmony with the great majority of the genera in the family; *Jaera* (as defined by Sars) and *Jaeropsis* being the only genera in which it is lacking.

Secondly, the maxilliped resembles that of *Janira*, and differs completely from that of *Jaera marina* in having an angular outer margin to the epipod.

Thirdly, the first pleopods are quite peculiar, but as Tattersall (l.c.) has shown that this pair of pleopods differ very considerably in *Jaera marina* and *Jaera nordmanni*, two species otherwise very hard to separate, this feature has little importance in deciding on the systematic position of the present species. These pleopods approximate somewhat to those of *Janira*, as do also the third pleopods.

Fourthly, the elongate, parallel-sided body is rather different from the more oval shape of the typical species.

However, the shape of the head, the peraeon segments without distinct epimera, the short first antennae and the uropods all

make a near approach to *Jaera*, and for the present the species may remain in this genus.

GEN. IAIS, Bovallius.

1886. *Iais*, Bovallius, Bib. K. Svenska, Vet. Ak. Handl. vol. 2, No. 15, pp. 4, 50.
1886. *Jaera* (part), Beddard, Challenger Rep. vol. 17, p. 19.
1887. *Iais* (*Janthé*), Pfeffer, Krebse von Süd-Georgien, p. 18.
1900. „ Stebbing, Proc. Zool. Soc. Lond. 1900, p. 548.

IAIS PUBESCENS (Dana).

(Plate XXXVII. C.)

1853. *Jaera pubescens*, Dana, U.S. Expl. Exp. vol. 13, p. 744, pl. 49, figs. 9a-d.
1900. *Iais* „ Stebbing, l.c. p. 549, pl. 38 (♀). (Synonymy.)
1904. „ „ id. Spolia Zeylanica, vol. 2, pt. 5, p. 10.
1909. „ „ Chilton, Subantaret. Is. New Zealand, Crust. vol. 2, p. 649.

It appears that the male has so far escaped observation. It does not differ essentially from the female except as regards the mandibles. These have the incisive process very much prolonged, gently curved and tapering gradually to a subacute, entire apex, with a strong seta about half-way along the inner margin, spine-row with 4 spines, molar similar to that of ♀ but rather weaker, palp as in ♀, arising from a short process.

The lobes of the lower lip are short, almost semicircular, the inner margin straight, the apical angles being internal therefore and not external as in Stebbing's figure.

First pleopods fused basally, not diverging distally, the outer margins sinuous, rami well developed, oblong with rounded apices, sparsely setulose.

Second pleopod with peduncle longer than broad, apex subacute, outer ramus arising some little distance from apex, male stylet extending as far as, not beyond, the apex of peduncle.

Third pleopod similar in both sexes, inner ramus stout, suture between the 2 joints oblique, 2nd joint apically truncate, with 2-4 denticles, outer ramus half width of inner, curving inwards, apex pointed, margins setulose, an obscure suture dividing off the distal third.

Length : 2.5 mm.

Colour : White or pale pinkish, the ova salmon-coloured.

Locality : Several localities near Cape Town in Table Bay both free-living on the underside of stones and commensal with the following Sphaeromids : *Exosphaeroma gigas*, *E. kraussi*, *E. brevitelson*, *E. varicolor*, *E. planum*, *Parisocladus stimpsoni*, *P. perforatus*, *Sphaeramene polytylotos*, *Dynamenella scabricula*, *D. kraussi* (K.H.B.); Saldanha Bay on *Exosphaeroma kraussi* (K.H.B.); St. James and Buffels Bay in False Bay on *Dynamenella scabricula*, *D. kraussi* (K.H.B.).

Tristan d'Acunha on *Isocladus tristensis*. (P. C. Keytel. 1909.)

Geogr. Distribution : Terra del Fuego (Dana), Straits of Magellan (Bovallius), Kerguelen (Smith and Beddard), Falkland Islands (Stebbing), South Georgia (Pfeffer), in each case on *Exosphaeroma gigas*; Tasmania (G. M. Thomson), on ? *Sphaeroma quoyana*; New Zealand (Chilton) free and on ? *Sphaeroma obtusa*; Ceylon (Stebbing), in the burrows of *Sphaeroma terebrans*.

When found on Sphaeromids, they are among the bases of the peraeopods, though on *Sphaeramene polytylotos* they seem to prefer to live among the pleopods. As a rule there is only one adult ♂ and one ♀, with or without one or two immature ones, on each "host." On *Dynamenella scabricula* in Table Bay, however, I have found them extremely abundant, as many as 12 or 15 being taken from a single large ♂. They are found more frequently on ♂ Sphaeromids than ♀, and it is rare to find any on young specimens.

GEN. JANIRA, Leach.

For references see : Barnard, Ann. S.A.M. x. pt. 7, p. 219, 1914.

JANIRA EXSTANS, n. sp.

(Plate XXXVIII. B.)

Body apparently smooth and glabrous, but much overgrown with foreign substances. Head with antero-lateral angles well marked, anterior margin strongly produced into a broad rounded process, length of head (incl. process) equal to width, eyes on the lateral margins, prominent.

Peraeon in ♂ with 1st segment nearly twice as long as any of the succeeding ones, in ♀ equal to or a little shorter than the others, the last three segments distinctly shorter than the anterior ones, lateral margins rounded, epimera indistinct.

Pleon broadly oval, longer than broad, margins entire.

First antenna reaching to end of 4th peduncular joint of 2nd antenna, 1st joint stout, 2nd a little longer, flagellum longer than peduncle, 4-jointed, 3rd joint longest, 4th minute.

Second antenna, 3rd joint without scale, 5th and 6th subequal, longer than first 4 joints together, flagellum nearly twice as long as peduncle, ca. 38-jointed in ♂, ca. 24 in ♀.

Upper lip short, as broad as long, apex rounded.

Lower lip with short, broad lobes, inner apex strongly setose.

Mandibles, cutting-edge 4-dentate, secondary cutting-edge in left 4-dentate, spine-row with 5 spines, molar fairly prominent, palp with 3rd joint shorter than 2nd, with apical seta, no marginal setae on 2nd or 3rd joints.

First maxilla, outer plate with ca. 10 (?) spines, inner plate with 5 setae.

Second maxilla, outer and middle plates with 4 spines each.

Maxilliped, inner plate nearly as long as 2nd joint, 2 coupling-hooks near base, 4th and 5th joints not expanded, epipod reaching end of 4th joint, narrow lanceolate, outer margin slightly angular, apex acute tapering.

First peraeopod in ♂ stout, subchelate, 2nd and 3rd joints subequal, inner surface of 3rd joint with 7 transverse rugae on inner margin, 4th joint with 1 stout spine on outer apex, 5th joint triangular, distally produced on inner side, with 1 stout spine on inner apical angle and another further along distal margin, 6th joint curved, inner margin distally serrulate, 7th joint half as long as 6th, biunguiculate. In ♀ prehensile but scarcely stouter than the other peraeopods, 3rd joint without rugae, 5th joint with 1 long spine on inner apical angle, inner margin of 6th joint not serrulate.

Second to seventh peraeopods similar, the posterior ones longer and rather more slender than anterior ones, 2nd and 3rd joints subequal, 4th with 2 spines on outer apex, 5th and 6th subequal and equal to the 2nd and 3rd, inner margin of 6th with 4 spines in ♂, 3 in ♀, 7th joint biunguiculate.

First pleopod ♂, peduncle narrowing rather rapidly, apex not expanded, but outer angle with 1 spine, ramus rounded truncate, setose.

First pleopod ♀ (operculum) rather pear-shaped, as broad as long, tapering to a broadly rounded apex, with a few scattered setae.

Second pleopod ♂ narrow, outer margin nearly straight, apex subacute, setose, ramus at some distance from apex, very small, male stylet stout, reaching to apex.

Third pleopod inner lobe broad, apex rounded with 2 setae, outer lobe 2-jointed, a little longer than inner.

Uropods three-quarters length of pleon, inner ramus longer than outer, both longer than peduncle, with strong apical setae.

Length: ♂ 2.5 mm., ♀ 1.75 mm.; *breadth*: ♂ .75 mm., ♀ (ovigerous) .75 mm.

Colour: Pale grey, eyes reddish, ova salmon-coloured.

Locality: Buffels Bay (False Bay). 28/9/13. (K.H.B.) ♂ ♂ and ♀ ♀ with ova, under stones at low-tide; Sea Point, near Cape Town. 14/12/13. (K.H.B.) 1 ♀ with ova; Hout Bay. 11/2/14. (K.H.B.) ♂ ♂ and ♀ ♀ with ova. (S.A.M. Nos. A2546, A2658 and A2674.)

In respect to the stout, subchelate 1st peraeopods this species may be compared with three other species of small size: *J. minuta*, Richardson, 1902, *J. nana*, Stebbing, 1905, and *J. crosslandi*, Stebbing, 1910. The absence of a scale on the 3rd joint of the 2nd antennae, however, is distinctive and brings the species into conflict with the definition of the genus *Janira*. The shape of the head also is peculiar and recalls that of *Nannoniscus*, Sars, and *Austro-nanus*, Hodgson, 1910. It is in allusion to these last two features that the specific name is chosen.

FAMILY MUNNIDAE.

1882. *Munnidae*, Sars, Vidensk. Forh. Christ. No. 18. p. 17.

1897. ,, G. O. Sars, Crust. Norw. vol. 2, p. 105.

1905. ,, Richardson, Bull. U.S. Nat. Mus. No. 54, p. 479.

KUPHOMUNNA, n. gen.

Resembling *Munna* in general shape, but head produced anteriorly into a rostrum, 1st peraeon segment much larger than any of the others, gibbous, epimera visible on posterior segments only, uropods not very small, composed of a peduncle and two rami, palp of maxilliped slender.

Generic name from *κνφοε*, hunch-backed, and *Munna*, in allusion to the enlarged 1st peraeon segment.

KUPHOMUNNA ROSTRATA, n. sp.

(Plate XXXVIII. C.)

Body apparently glabrous, but much overgrown with Diatoms, etc.

Head with anterior margin sinuate, produced below the anterior

margin into a long and broad rostrum, with 4-5 teeth on lateral margins and a bluntly rounded apex, eyes well developed on the lateral projections.

Peraeon with 1st segment very large, swollen and gibbous, as long as the 3 following segments together, segments 2-4 equal in length, lateral margins subquadrate, with 1 spine on antero-lateral angle, segments 5-7 equal and a little longer than the anterior segments, diminishing gradually in width, lateral margins rounded, with 1 spine on antero-lateral angles. Epimera visible only on segments 5-7, with 1 spine.

Pleon of one piece, oval, margins entire.

First antenna, peduncle stout, 2nd joint half length of 1st, flagellum 3-jointed.

Second antenna, first 3 peduncular joints stout, short, 4th and 5th elongate, subequal, flagellum nearly as long as peduncle, 15-jointed.

Upper lip with rounded, setose distal margin.

Lower lip, lobes rather short, ovate, outer margin distally setose, inner margin distally emarginate, apex subacute.

Mandibles narrow, cutting-edge tridentate, secondary cutting-edge on left tridentate, absent on right, spine-row with 5 spines in both mandibles, molar prominent, no trace of a palp.

First maxilla outer plate with 7 spines, some denticulate on outer margin, inner plate with 4 setae.

Second maxilla, outer and middle plates each with 4 spines.

Maxilliped, 2nd joint increasing in width distally and passing into inner plate without distinct suture, outer margin of inner plate oblique, setose near apex, 2 coupling-hooks at base, 3rd joint short, 4th and 5th joints subequal, 6th a little longer and 7th a little shorter, epipod reaching to about middle of 4th joint.

First peraeopod, 2nd joint longest, 3rd with 3 spines on outer apex, 4th strongly produced externally, with 2 spines on subacute apex, 5th triangular, outer margin spinose, distal margin with 7 stout blunt spines, each with a cilium near apex, 6th oval, palm with 3 spines, 7th slender as long as 6th, with a single slender unguis.

Second to seventh peraeopods similar to one another except that 2nd is a little stouter and has 5th joint elongate-oval instead of oblong; 6th joint longest, 7th short, with 2 unguis.

First pleopod ♂, peduncle tapering, apices curved outwards, acute, a group of fine setae half-way along outer margin, ramus obscurely separated from peduncle, with 2 spines.

Second pleopod ♂, peduncle elongate-lanceolate, apex acute, outer

ramus inserted a little beyond the middle of inner margin and a long way from apex, male stylet reaching to end of peduncle.

Third pleopod, outer ramus apparently single-jointed, apex acute, inner ramus with blunt apex (without setae?).

Fourth pleopod, outer ramus single-jointed, apex acute, inner ramus with 3 strongly plumose setae on apex.

Fifth pleopod with 1 branch only (apparently).

Uropods well developed, peduncle longer than rami, of which the inner is longer than the outer.

Length : 2 mm. ; *breadth* : 1 mm.

Colour : Whitish, head and 1st peraeon segment grey, the latter with darker mottling, rostrum with a tinge of red.

Locality : Buffels Bay (False Bay). 28/9/13. (K.H.B.) 1 ♂.
Low-tide. (S.A.M. No. A2543.)

[N.B.—Pages 325 to 358 having been unfortunately duplicated, the *second* appearance of these *thirty-four* pages (only) is indicated by an “*a*” after each page number. Pages 325–358 appeared in Part X.; 325*a*–358*a* are in this Part, XI.]

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PLATE XXVII. A.

Aapseudes avicularia, n. sp.

n.s. Line representing natural size of specimen drawn magnified 13 times, with 6th pleon segment and telson further enlarged.

a.₁, a.₂. First and second antennae.

prp.₁. (gn.). First peraeopod with apices of 6th and 7th joints further enlarged.

prp.₂. Second peraeopod.

PLATE XXVII. B.

Aapseudes deltoides, n. sp.

rostr. Anterior margin of head with rostrum and bases of 1st and 2nd antennae.

a.₁, a.₂. First and second antennae.

mand. r. Right mandible with spine-row further enlarged.

mand. l. Cutting-edge, secondary cutting-edge, and spine-row of left mandible.

prp.₁. (gn.) First peraeopod.

prp.₂, prp.₃. Second and third peraeopods.

tels. + urop. Sixth pleon segment, telson and uropods.

PLATE XXVII. C.

Tanaïs annectens, n. sp.

a.₁, a.₂. First and second antennae.

l.s. Upper lip.

l.i. Lower lip.

mxp. ep. Maxilliped with epipod.

prp.₁. (gn.). Sixth and seventh joints of 1st peraeopod.

PLATE XXVII. D.

Cyathura estuarius, n. sp.

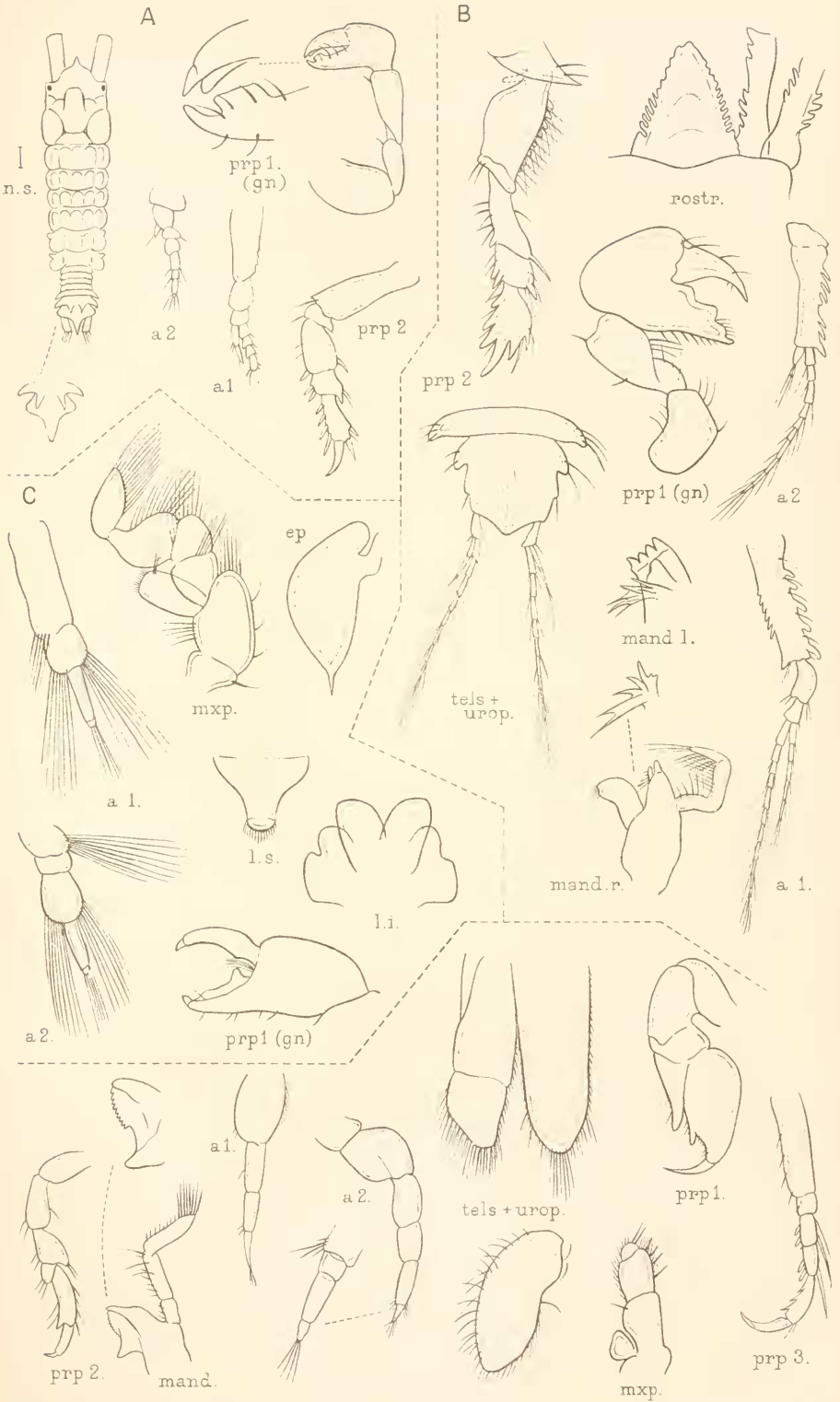
a.₁, a.₂. First and second antennae with flagellum of 2nd further enlarged.

mand. Mandible with cutting-plate further enlarged.

mxp. Maxilliped.

prp.₁, prp.₂. First and second peraeopods.

tels. + urop. Telson with inner and outer rami of uropods.



K.H.B. del.

West, Newman lith.

A. APSEUDES AVICULARIA *n. sp.*

B. APSEUDES DELTOIDES *n. sp.*

C. TANAIS ANNECTENS *n. sp.*

D. CYATHURA ESTUARIUS *n. sp.*

PLATE XXVIII. A.

Eranthura macrura, n. g. et sp.

- a.₁, a.₂. First and second antennae.
mand. Mandible with cutting-plate further enlarged.
mxp. Maxilliped.
prp.₁. First peraeopod.
tels. + urop. Seventh peraeon segment, pleon, telson, and inner and outer rami of uropods.

PLATE XXVIII. B.

Anthelura remipes, n. sp.

- a.₁, a.₂. First and second antennae with flagellum of each further enlarged.
mand. Mandible with cutting-plate further enlarged.
mxp. Maxilliped with 5th and 6th (?) joints further enlarged.
prp.₁. First peraeopod with inner margin of 5th joint further enlarged.
prp.₂. Second peraeopod.
tels. + urop. Telson with inner and outer rami of uropods.

PLATE XXVIII. C.

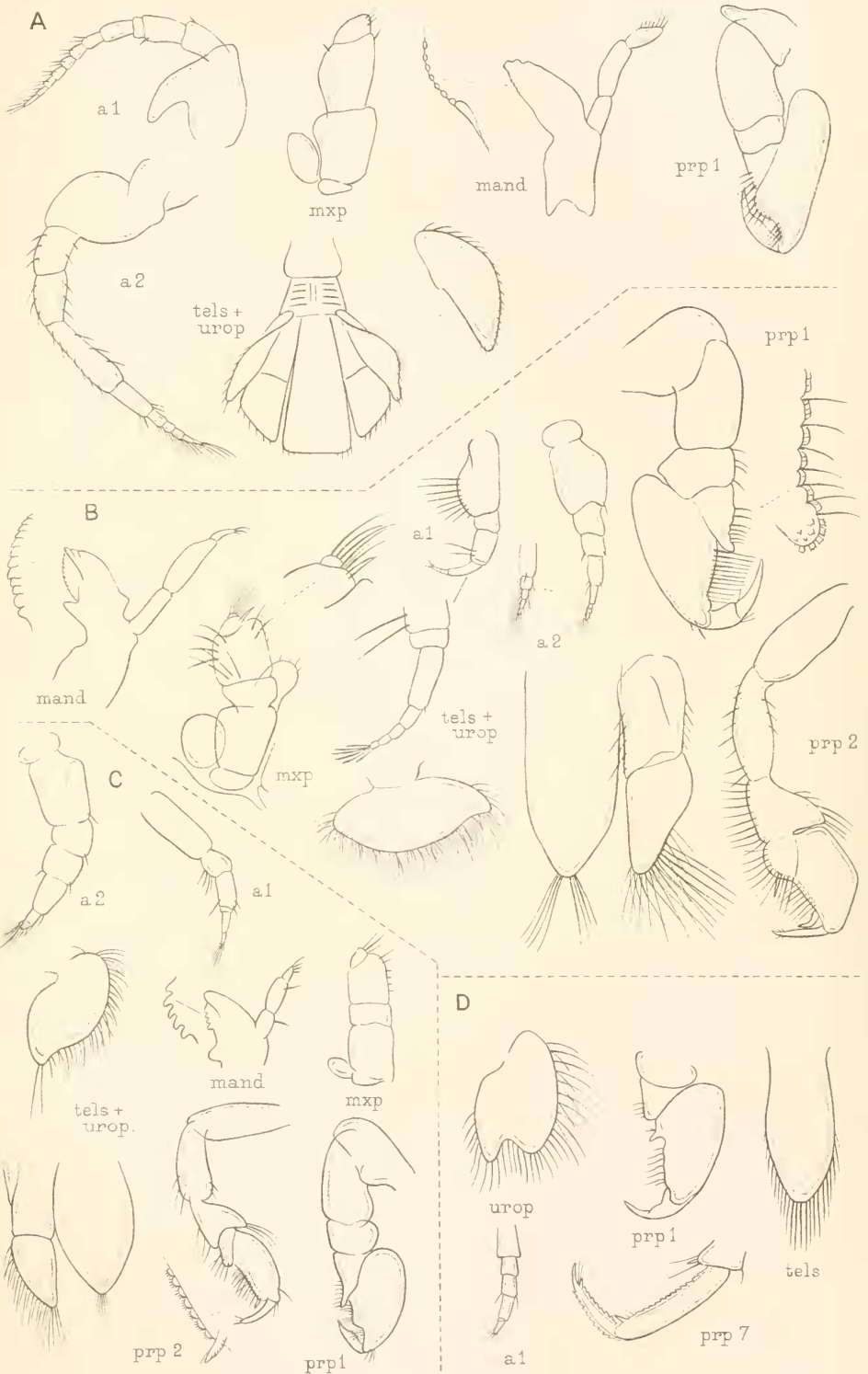
Apanthura africana, n. sp.

- a.₁, a.₂. First and second antennae.
mand. Mandible with cutting-plate further enlarged.
mxp. Maxilliped.
prp.₁, prp.₂. First and second peraeopods with inner margin of 6th joint of 2nd further enlarged.
tels. + urop. Telson with inner and outer rami of uropods.

PLATE XXVIII. D.

Apanthura dubia, n. sp.

- a.₁. First antennae.
prp.₁. Fifth, sixth, and seventh joints of 1st peraeopod.
prp.₇. Sixth and seventh joints of 7th peraeopod.
tels. Telson.
urop. Outer ramus of uropod.



K.H.B. del.

West, Newman lith.

A. EXANTHURA MACRURA n. sp. et sp.

B. ANTHELURA REMIPES n. sp.

C. APANTHURA AFRICANA n. sp.

D. APANTHURA DUBIA n. sp.

PLATE XXIX. A.

Mesanthura catenula (Stimpson), n. g.

- a.₁ ♂. First antenna of ♂.
a.₂ ♂. Flagellum of 2nd antenna of ♂.
a.₁ ♀, a.₂ ♀. First and second antennae of ♀.
mand. l. Left mandible.
mand. r. Right mandible with cutting-plate further enlarged.
mxp. Maxilliped.
prp.₁, prp.₂, prp.₇. First, second and seventh peraeopods, with inner margin of 6th joint of 2nd further enlarged.
tels. + urop. Telson with inner and outer rami of uropods.

PLATE XXIX. B.

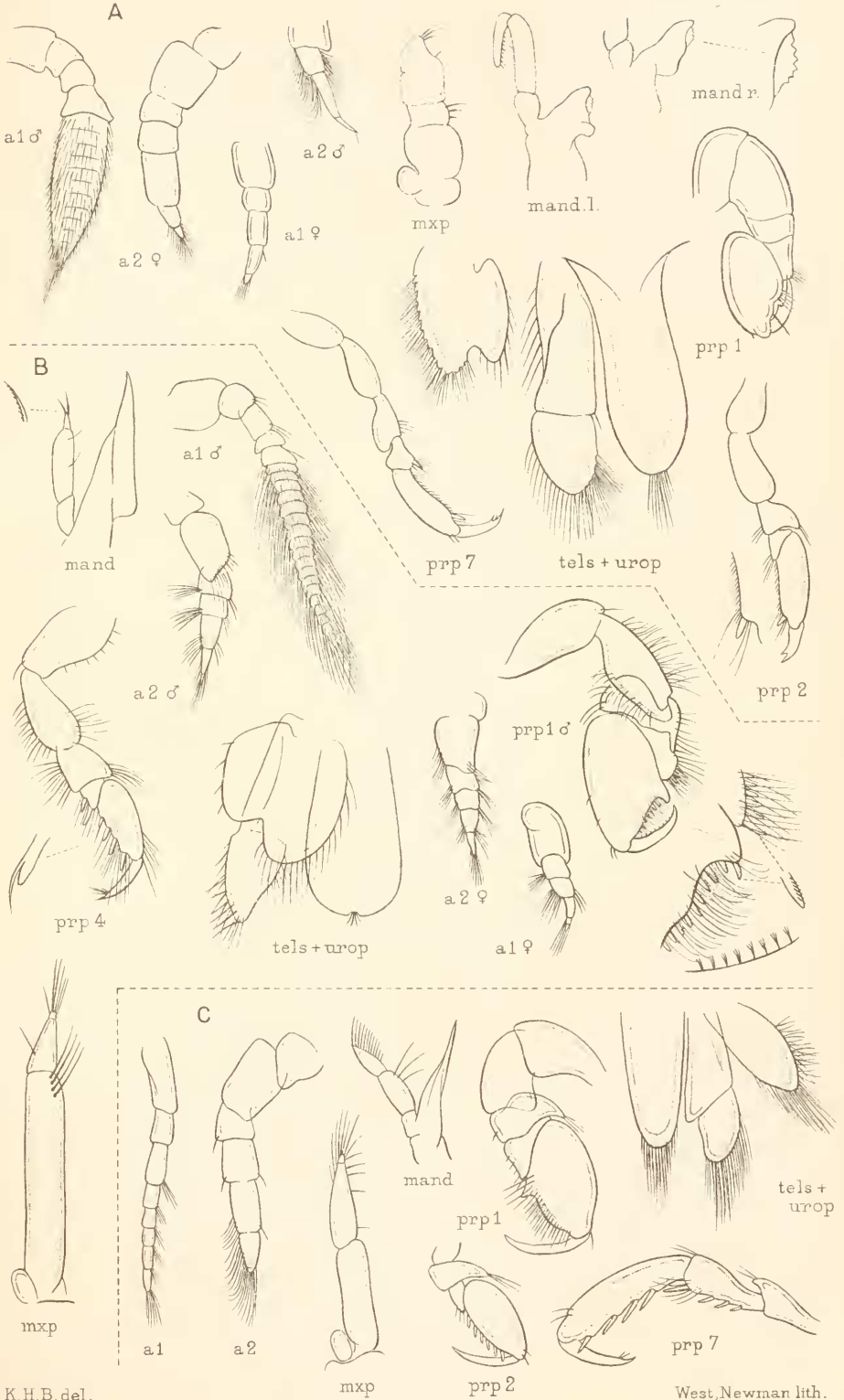
Leptanthura faurci, n. sp.

- a.₁ ♂, a.₂ ♂. First and second antennae of ♂.
a.₁ ♀, a.₂ ♀. First and second antennae of ♀.
mand. Mandible with seta from apex of palp further enlarged.
mxp. Maxilliped.
prp.₁ ♂. First peraeopod of ♂ with inner margins of 5th, 6th and 7th joints and a spine from inner margin of 5th and 6th joints further enlarged.
prp.₄. Fourth peraeopod with spine from inner margin of 6th joint further enlarged.
tels. + urop. Telson with inner and outer rami of uropods.

PLATE XXIX. C.

Paranthura punctata (Stimpson).

- a.₁, a.₂. First and second antennae.
mand. Mandible.
mxp. Maxilliped.
prp.₁, prp.₇. First and seventh peraeopods.
prp.₂. Fourth-seventh joints of 2nd peraeopod.
tels. + urop. Telson with inner and outer rami of uropods.



K. H. B. del.

West, Newman lith.

A. MESANTHURA CATENULA (*Stimpson*) n.g.

B. LEPTANTHURA FAUREI n.sp. C. PARANTHURA PUNCTATA (*Stimpson*)

PLATE XXX. A.

Cirolana undulata, n. sp.

tels. + urop. Telson with inner and outer rami of uropods, with the apices of telson and both rami further enlarged.

PLATE XXX. B.

Cirolana vicina, n. sp.

prp.₂, prp.₇. Second and seventh peraeopods.

tels. + urop. Telson with inner and outer rami of uropods.

urop. Inner and outer rami of uropod with apex of inner ramus further magnified.

PLATE XXX. C.

Pontogeloïdes latipes, n. g. et sp.

hd. + a.₁, a.₂. Head and 1st peraeon segment, with 1st and 2nd antennae.

f.l. + ep. Frontal lamina, epistome and upper lip.

mand. Mandible.

mxp. Maxilliped with seta from inner plate further enlarged.

prp.₁, prp.₇. First and seventh peraeopods.

plp.₂. Second pleopod of ♂.

tels. + urop. Telson and uropods with apical margin of telson further enlarged.

urop. Right uropod.

PLATE XXX. D.

Corallana africana, n. sp.

l.i. Lower lip.

mand. Mandible.

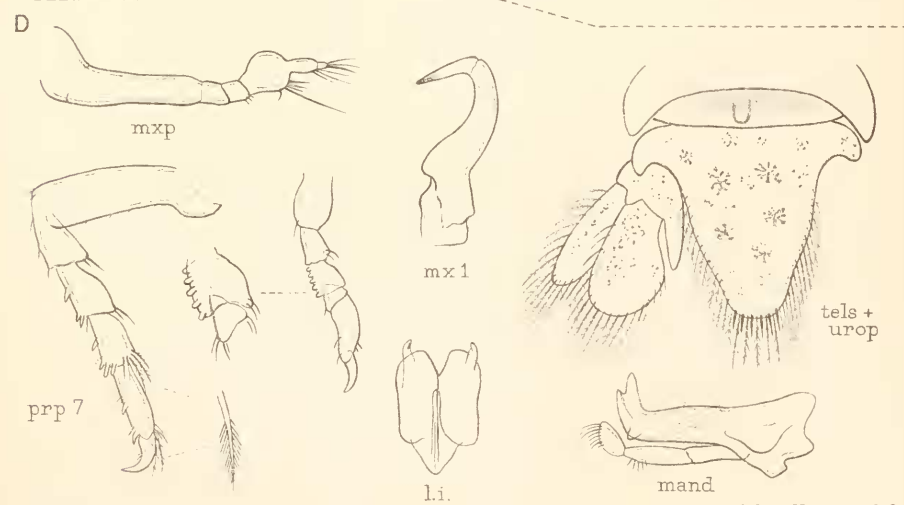
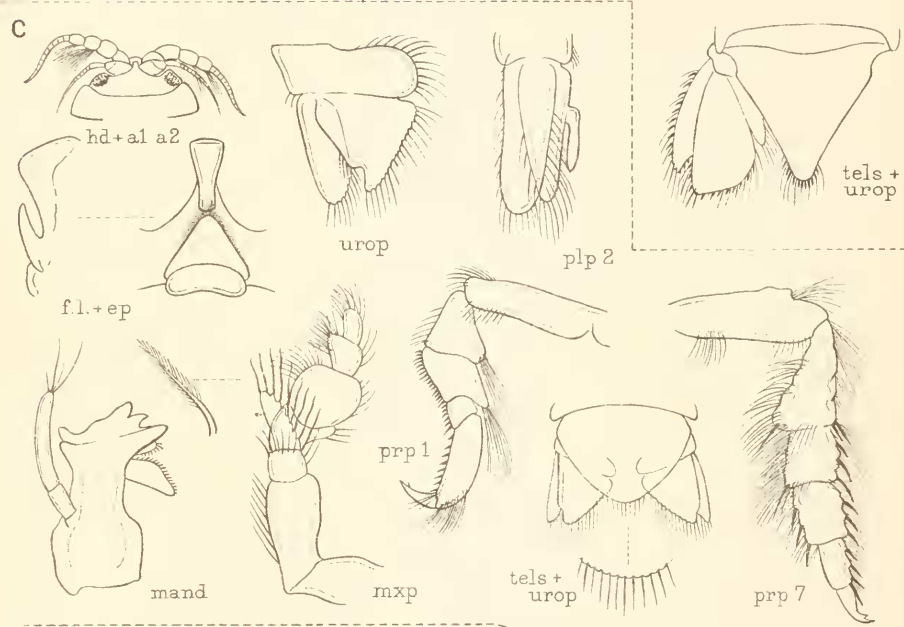
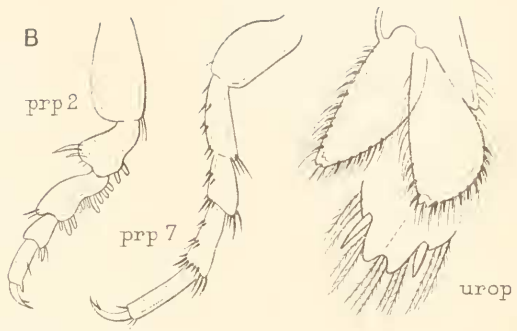
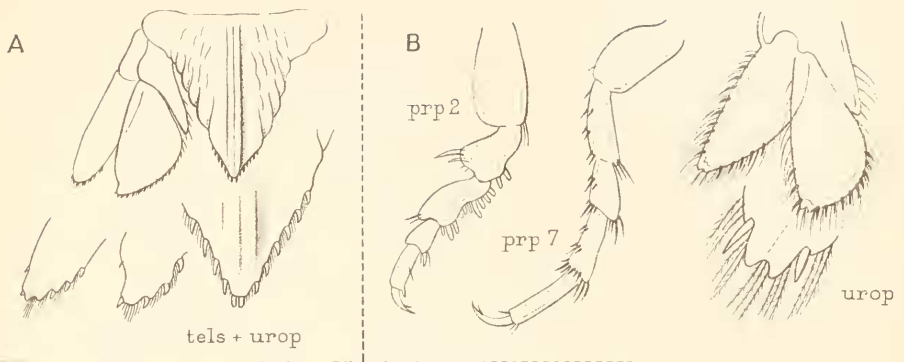
mx.₁. First maxilla.

mxp. Maxilliped.

prp.₁. First peraeopod with 4th and 5th joints further enlarged.

prp.₇. Seventh peraeopod with setae from 5th and 6th joints further enlarged.

tels. + urop. Fifth pleon segment, telson and inner and outer rami of uropods.



K.H.B.del.

West, Newman lith.

A. CIROLANA UNDULATA n.sp.

B. CIROLANA VICINA n.sp.

C. PONTOGELOIDES LATIPES n.g.et sp.

D. CORALLANA AFRICANA n.sp.

PLATE XXXI. A.

Lanocira capensis, n. sp.

- mand. l. Left mandible with molar further enlarged.
mand. r. Apex of right mandible with secondary cutting-edge and molar further enlarged.
mx.₁, mx.₂. First and second maxillae.
mxp. Maxilliped of ♀ with setae from inner plate and epipod further enlarged.
prp.₁. Third-seventh joints of 1st peraeopod.
prp.₂. Third-seventh joints of 2nd peraeopod.
plp.₂. Second pleopod ♂ with apical seta from ramus further enlarged.

PLATE XXXI. B.

Aega monophthalma, Johnston.

- a.₁, a.₂+f.l. Anterior portion of head with 1st and 2nd antennae and frontal lamina.
mand. Mandible.
mx.₁, mx.₂. First and second maxillae with apex of 1st further enlarged.
mxp. Maxilliped with 4th-7th joints further enlarged.
prp.₂. Second peraeopod.

PLATE XXXI. C.

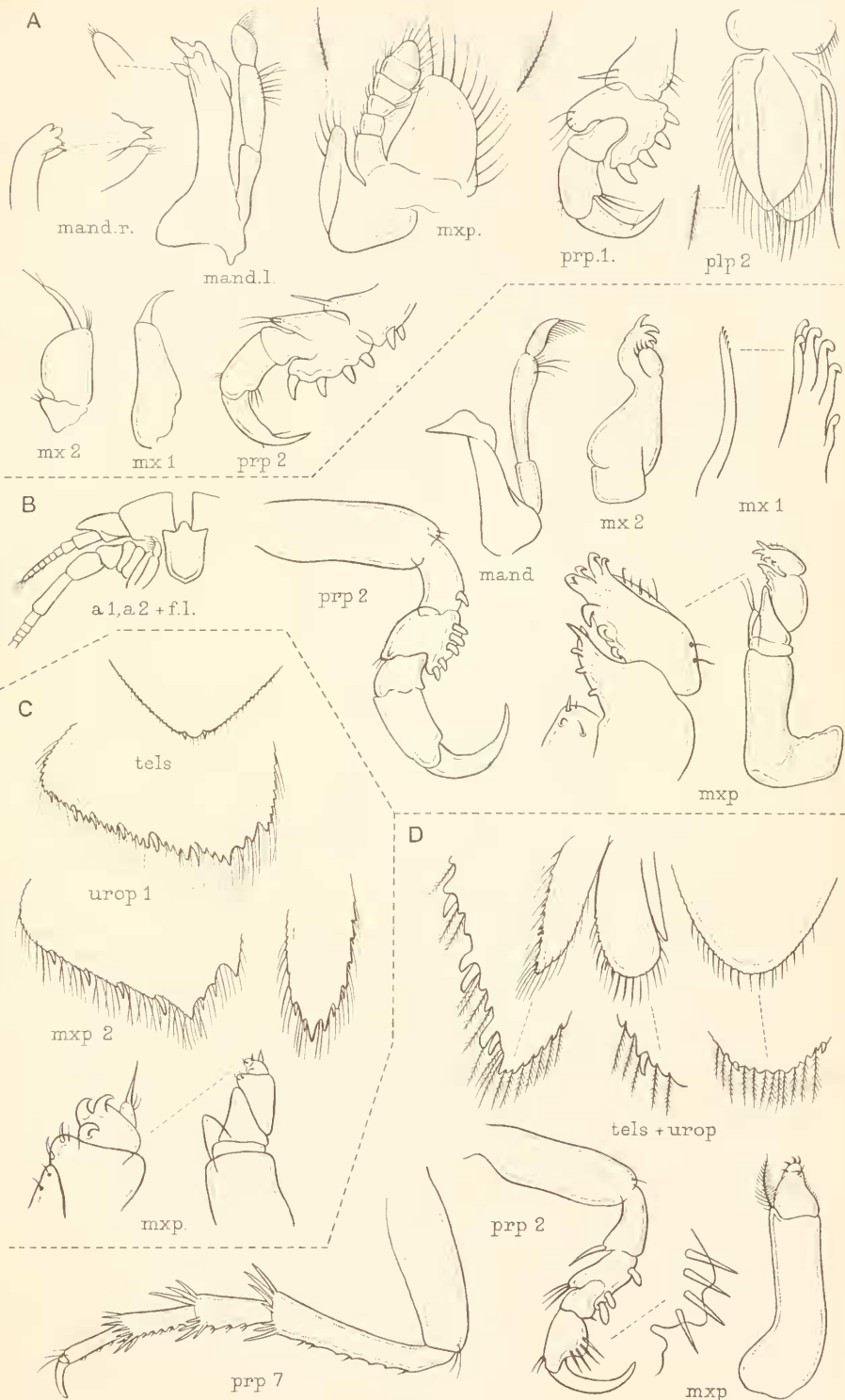
Aega monilis, n. sp.

- mxp. Second-seventh joints of maxilliped with 4th-7th joints further enlarged.
tels. Apical margin of telson.
urop.₁. Apical margin of inner ramus of uropod of East London specimen.
urop.₂. Apical margins of inner and outer ramus of uropod of Cape specimen.

PLATE XXXI. D.

Rocinela granulosa, n. sp.

- mxp. Maxilliped.
prp.₂, prp.₇. Second and seventh peraeopods, with inner margin of 6th joint of 2nd further enlarged.
tels.+urop. Apices of telson and inner and outer rami of uropods, with the margins further enlarged.



K.H.B. del.

West, Newman lith.

A. LANOCIRA CAPENSIS *n. sp.*

B. AEGA MONOPHTHALMA *Johnston.*

C. AEGA MONILIS *n. sp.*

D. ROCINELA GRANULOSA *n. sp.*

PLATE XXXII. A.

Aega urotoma, n. sp.

tels. + urop. Telson and uropods.

PLATE XXXII. B.

Exosphaeroma brevitelson, n. sp.

tels. + urop. ♂ ♀. Seventh peraeon segment, pleon, telson and uropods of ♂
and ♀.

ep. + l.s. Epistome and upper lip.

PLATE XXXII. C.

Exosphaeroma varicolor, n. sp.

tels. + urop. ♂. Seventh peraeon segment, pleon, telson and uropod of ♂.

ep. + l.s. Epistome and upper lip.

PLATE XXXII. D.

Exosphaeroma kraussi, Tattersall.

tels. + urop. ♂. Sixth and seventh peraeon segments, pleon, telson and uropod
of ♂.

ep. + l.s. Epistome and upper lip.

PLATE XXXII. E.

Exosphaeroma porrectum, n. sp.

n.s. Line representing natural size of specimen drawn magnified 7 times.

ep. + l.s. Epistome and upper lip.

PLATE XXXII. F.

Exosphaeroma planum, n. sp.

n.s. Line representing natural size of specimen drawn magnified 3 times.

ep. + l.s. Epistome and upper lip.

PLATE XXXII. G.

Parisocladius stimpsoni (Heller), n. g.

tels. + urop. ♂ ♀. Seventh peraeon segment, pleon, telson and uropod of ♂ and ♀.

lat. tels. ♂. Lateral view of 7th peraeon segment, pleon and telson of ♂.

tels. juv. Apex of telson of young ♂.

ep. + l.s. Epistome and upper lip.

pen. ♂ appendages on 7th peraeon segment.

PLATE XXXII. H.

Parisocladius perforatus (M. Edw.).

n.s. Line representing natural size of ♂ specimen drawn magnified 5 times.

lat. tels. ♂. Lateral view of 7th peraeon segment, pleon and telson of ♂.

lat. tels. ♀. Lateral view of pleon and telson of ♀.

tels. ♀. Hind view of telson of ♀.

ep. + l.s. Epistome and upper lip.

mand. l. mand. r. Left and right mandibles.

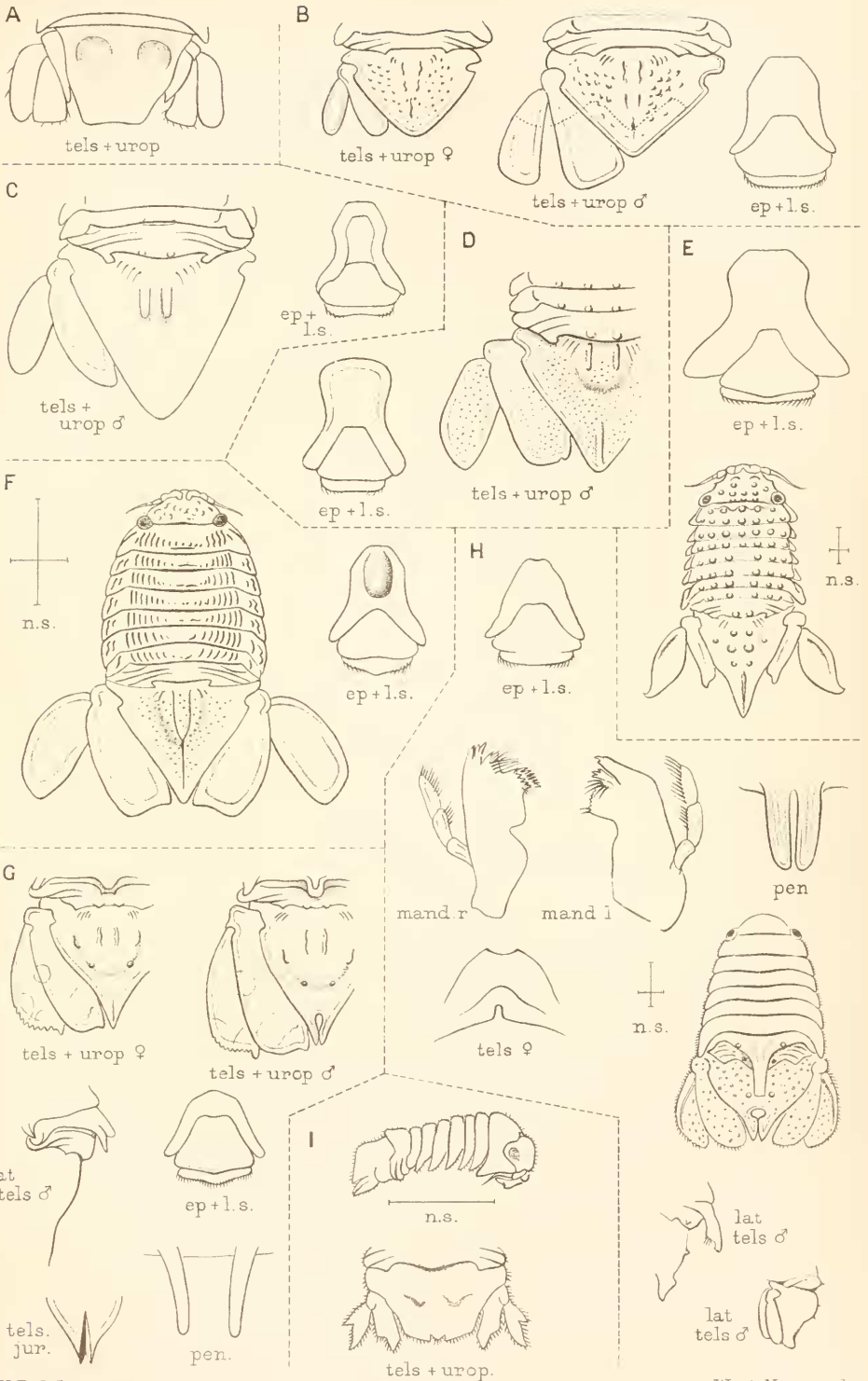
pen. ♂ appendages on 7th peraeon segment.

PLATE XXXII. I.

Cilicæa latreillei, Leach.

n.s. Line representing natural size of ♀ specimen drawn in profile magnified
 $1\frac{2}{3}$ times.

tels. + urop. Pleon, telson and uropods.



K.H.B. del.

West, Newman litn.

- A. AEGA UROTOMA *n. sp.* B. EXOSPHAEROMA BREVITELSON *n. sp.*
 C. EXOSPHAEROMA VARICOLOR *n. sp.* D. EXOSPHAEROMA KRAUSSI *Tatters*
 E. EXOSPHAEROMA PORRECTUM *n. sp.* F. EXOSPHAEROMA PLANUM *n. sp.*
 H. PARISOCLADUS PERFORATUS (*N. Edw.*) G. PARISOCLADUS STIMPSONI (*Heller*) *n. g.*
 I. CILICAEA LATREILLEI *Leach.*

PLATE XXXIII. A.

Sphaeramene polytylotos, n. g. et sp.

- n.s. Line representing natural size of σ specimen drawn magnified nearly 2 times.
 tels. ♀. Apex of telson of ♀.
 ep. + l.s. Epistome and upper lip, with proximal part of epistome drawn in profile.
 mand. Mandible.
 pen. σ appendages on 7th peraeon segment.

PLATE XXXIII. B.

Isocladus tristensis (Leach).

- tels. + urop. σ ♀. Seventh peraeon segment, pleon, telson and uropods of σ and ♀.
 ep. + l.s. Epistome and upper lip.
 pen. σ appendages on 7th peraeon segment.

PLATE XXXIII. C.

Cymodoce valida (Stebbing).

- tels. + urop. σ . Pleon, telson and uropods of σ .
 lat. tels. σ . Lateral view of pleon, telson and uropod of σ .
 tels. + urop. ♀. Telson and uropods of ♀ with margin of telson further enlarged.
 l.i. ♀. Lower lip
 mand. ♀. Mandible
 mx.₁ σ , mx.₂ ♀. First and second maxillae
 mxp. σ . Maxilliped
 pen. σ appendages on 7th peraeon segment.
- } of modified ovigerous ♀.

PLATE XXXIII. D.

Cymodoce comans, n. sp.

- tels. + urop. σ . Seventh peraeon segment, pleon, telson and uropods of σ .
 lat. tels. σ . Lateral view of same.
 tels. + urop. ♀. Telson and uropod of ♀ with inner and outer rami of uropod further enlarged.
 ep. + l.s. Epistome and upper lip.

PLATE XXXIII. E.

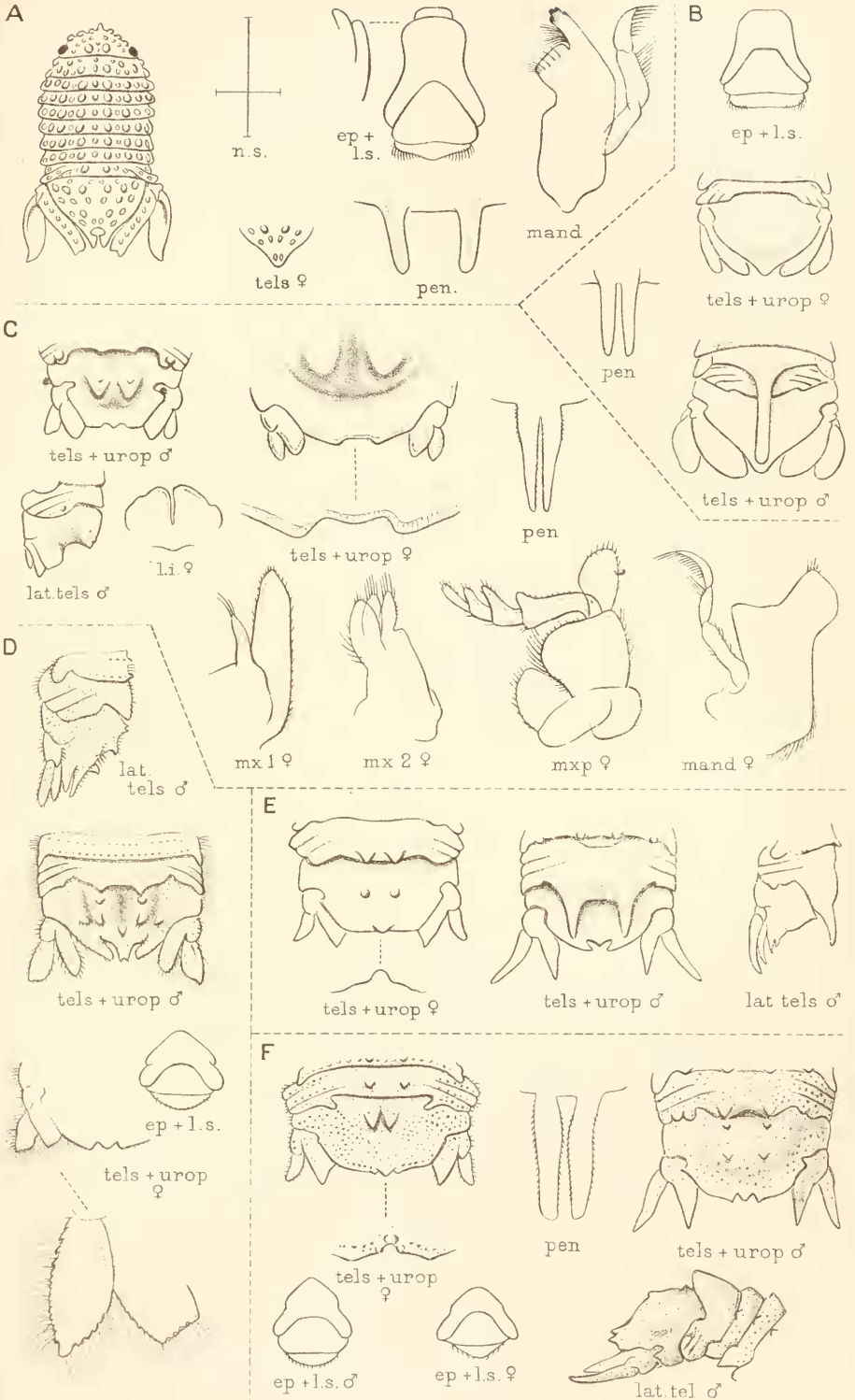
Cymodoce acanthiger, n. sp.

- tels. + urop. σ . Seventh peraeon segment, pleon, telson and uropods of σ .
 lat. tels. σ . Lateral view of same.
 tels. + urop. ♀. Seventh peraeon segment, pleon, telson and uropods of ♀, with apex of telson seen also in hind view.

PLATE XXXIII. F.

Cymodoce africana, n. sp.

- tels. + urop. σ . Seventh peraeon segment, pleon, telson and uropods of σ .
 lat. tels. σ . Lateral view of same.
 tels. + urop. ♀. Seventh peraeon segment, pleon, telson and uropods of ♀, with apex of telson seen also in hind view.
 ep. + l.s. σ , ♀. Epistome and upper lip of σ and ♀.
 pen. σ appendages on 7th peraeon segment.



K.H.B.del.

West, Newman lith.

A. SPHAERAMENE POLYTYLOTOS *n.g et sp.* B. ISOCLADUS TRISTENSIS (*Leach*)
 C. CYMODOCE VALIDA (*Stebbing*). D CYMODOCE COMANS *n. sp.*
 E. CYMODOCE ACANTHIGER *n. sp.* F CYMODOCE AFRICANA *n. sp.*

PLATE XXXIV. A.

Cymodoce falcata, n. sp.

- tels. + urop. ♂. Seventh peraeon segment, pleon, telson and uropods of ♂.
lat. tels. ♂. Lateral view of same.
pen. ♂ appendages on 7th peraeon segment.

PLATE XXXIV. B.

Cymodoce unguiculata, n. sp.

- tels. + urop. ♂. Pleon, telson and uropods of ♂.
lat. tels. ♂. Lateral view of same.
tels. + urop. ♀. Telson and uropod of ♀, with apex of telson seen also in hind view and outer ramus of uropod further enlarged.
e. urop. ♀. Variation in outer ramus of uropod of ♀.
pen. ♂ appendages on 7th peraeon segment.
plp.₂. Second pleopod of ♂ with apex of ♂ stylet further enlarged.

PLATE XXXIV. C.

Cymodoce umbonata, n. sp.

- tels. + urop. ♂. Pleon, telson and uropods of ♂.
lat. tels. ♂. Lateral view of same.
tels. ♂ juv. Apex of telson of young ♂.
tels. + urop. ♀. Pleon, telson and uropods of ♀.

PLATE XXXIV. D.

Paracilicua mossambicus, n. sp.

- tels. + urop. Pleon, telson and uropods.
lat. tels. Lateral view of same.
ep. + l.s. Epistome and upper lip.

PLATE XXXIV. E.

Dynamenella diorus, n. sp.

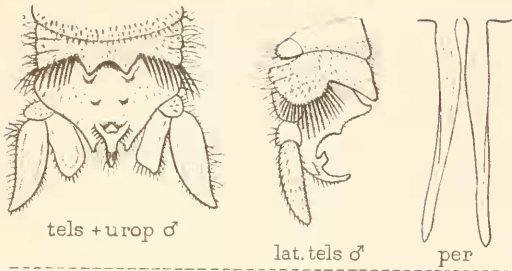
- n.s. Line representing natural size of ♂ specimen drawn magnified 6 times.
lat. tels. ♂. Lateral view of 7th peraeon segment, pleon, telson and uropod of ♂.
ep. + l.s. Epistome and upper lip.
mand. Mandible.
mxp. Maxilliped.
plp.₁, plp.₂. First and second pleopods of ♂.

PLATE XXXIV. F.

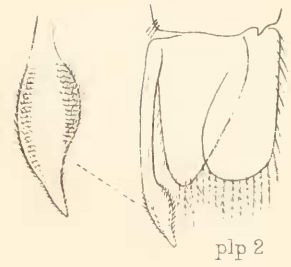
Dynoides serratisinus, n. g. et sp.

- n.s. Line representing natural size of ♂ specimen drawn magnified $4\frac{3}{4}$ times.
tels. + urop. Apices of telson and inner and outer rami of uropod further enlarged.
mand. Mandible.
mxp. Maxilliped.
pen. ♂ appendages on 7th peraeon segment.
plp.₂. Second pleopod of ♂.
plp.₄, plp.₅. Fourth and fifth pleopods.

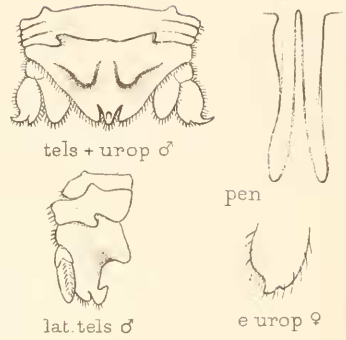
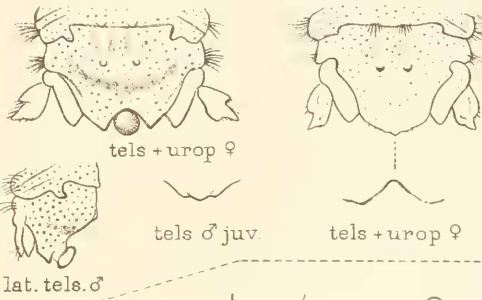
A



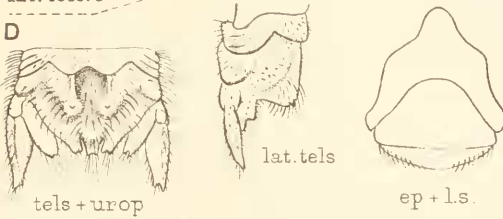
B



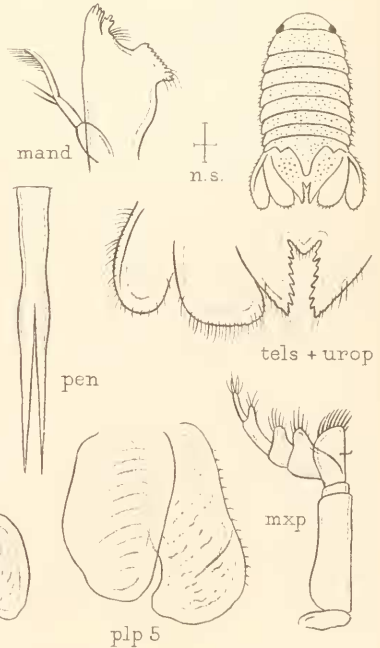
C



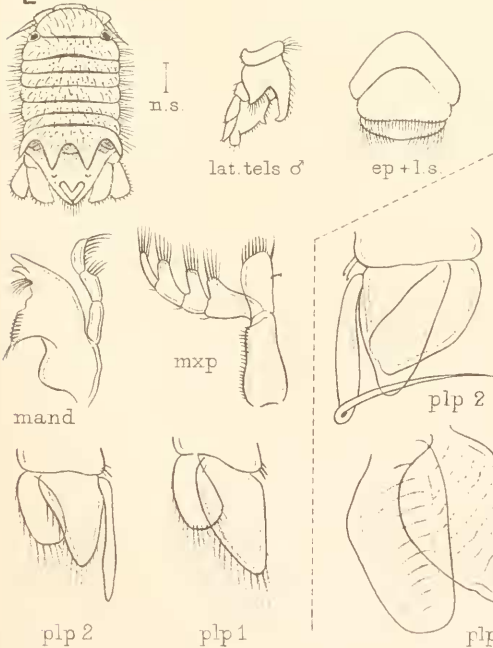
D



F



E



K.H.B. del.

West, Newman lith.

A. CYMODOCE FALCATA n. sp.

B. CYMODOCE UNGUICULATA n. sp.

C. CYMODOCE UMBONATA n. sp.

D. PARACILICÆA MOSSAMBIENSIS n. sp.

E. DYNAMENELLA DIOXUS n. sp.

F. DYNOIDES SERRATISINUS n. g. et sp.

PLATE XXXV. A.

Dynamenella scabricula (Heller).

- n.s. Line representing natural size of σ specimen drawn magnified $2\frac{1}{4}$ times.
lat. tels. σ . Lateral view of 7th peraeon segment, pleon and telson of σ .
a.₁. First antenna.
ep. + l.s. Epistome and upper lip.
l.i. Lower lip.
mand. Mandible.
mx.₁. First maxilla with apex of outer plate further enlarged.
mxp. Maxilliped.
pp.₁. First peraeopod with 7th joint further enlarged.
pp.₆. Second and third joints of 6th peraeopod.
pen. σ appendages on 7th peraeon segment.
plp.₁, plp.₅. First pleopod and outer ramus of 5th pleopod.
plp.₂. Second pleopod of σ .

PLATE XXXV. B.

Dynamenella kraussi, n. sp.

- tels. + urop. Third-seventh peraeon segments, pleon, telson and uropods, with apex of telson seen also in hind view.
a.₁. First antenna.
ep. + l.s. Epistome and upper lip.
mand. r. Right mandible, with apex further enlarged, the secondary cutting-edge still more so.
mand. l. Secondary cutting-edge and spine-row of left mandible.
pp.₁. First peraeopod with 7th joint further enlarged.
pen. σ appendages on 7th peraeon segment.
plp.₁. First pleopod.
plp.₂. Second pleopod of σ .

PLATE XXXV. C.

Dynamenella macrocephala (Krauss).

- n.s. Line representing natural size of specimen drawn magnified $3\frac{3}{8}$ times.
lat. Lateral view of specimen.

PLATE XXXV. D.

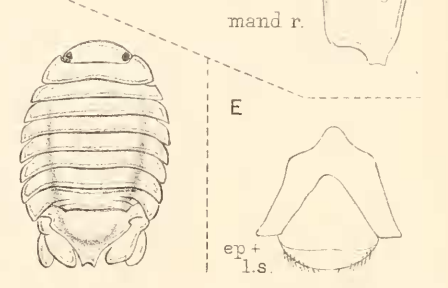
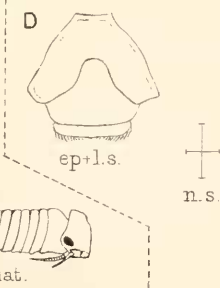
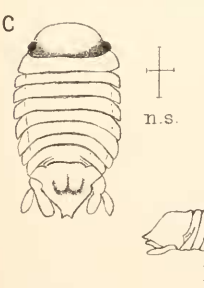
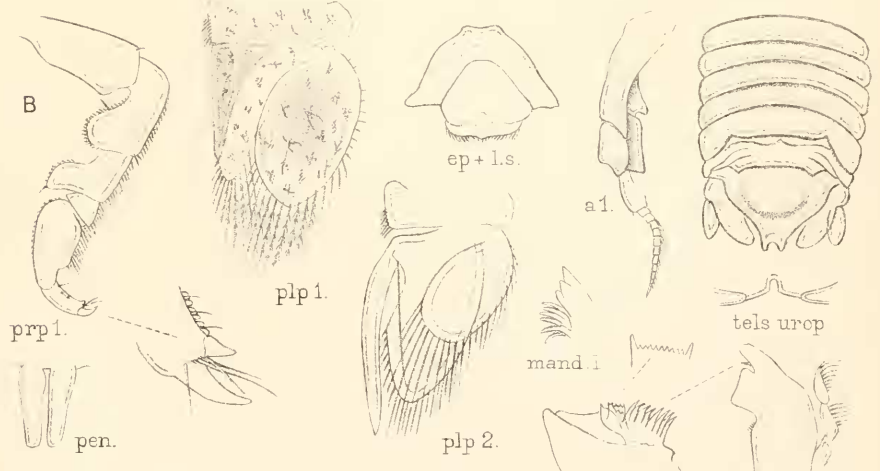
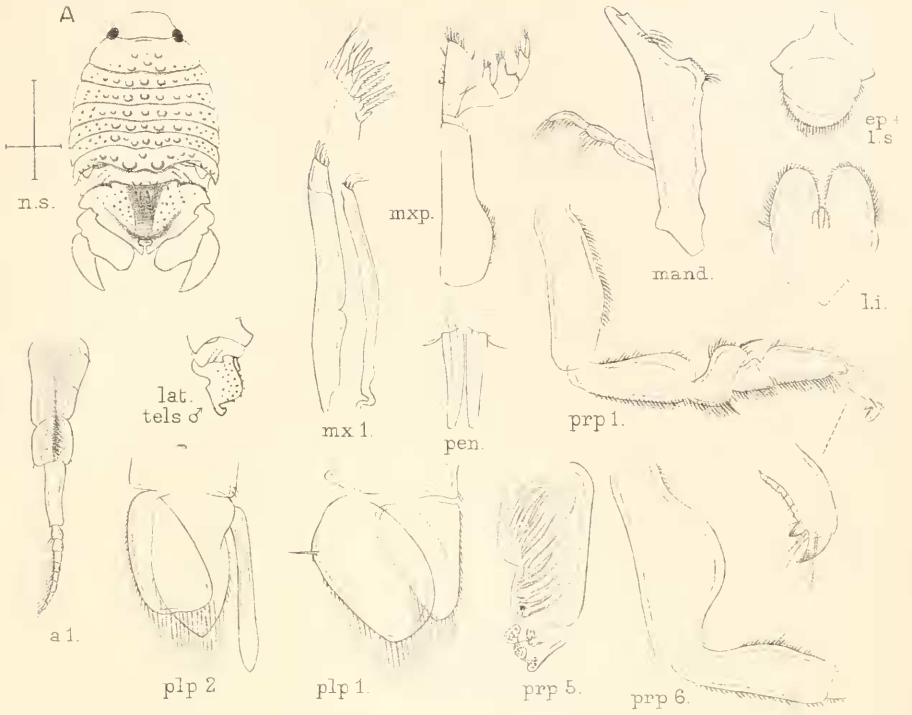
Dynamenella ovalis, n. sp.

- n.s. Line representing natural size of specimen drawn magnified 4 times.
ep. + l.s. Epistome and upper lip.

PLATE XXXV. E.

Dynamenella australis, Richardson.

- ep. + l.s. Epistome and upper lip.



K.H.B. del.

West, Newman lith.

A. DYNAMENELLA SCABRICULA (Heller). B. DYNAMENELLA KRAUSSI n.sp.
 C. DYNAMENELLA MACROCEPHALA (Krauss). D. DYNAMENELLA OVALIS n.sp.
 E. DYNAMENELLA AUSTRALIS Richardson.

PLATE XXXVI. A.

Dynamenella bicolor, n. sp.

tels. + urop. Sixth and seventh peraeon segments, pleon, telson and uropods.
ep. + l.s. Epistome and upper lip.

PLATE XXXVI. B.

Cymodocella subleris, n. sp.

n.s. Line representing natural size of specimen drawn magnified 8 times.
lat. tels. Lateral view of pleon and telson.
ep. + l.s. Epistome and upper lip.
l.i. Lower lip.
mand. r. Right mandible.
mxp. Maxilliped.
prp.₁. First peraeopod with spine from inner margins of 4th-6th joints further enlarged.
prp.₂. prp.₇. Second and seventh peraeopods.
pen. ♂ Appendages on 7th peraeon segment.
plp.₁, plp.₃, plp.₄, plp.₅. First and third-fifth pleopods.
plp.₂. Second pleopod of ♂.

PLATE XXXVI. C.

Cymodocella pustulata, n. sp.

n.s. Line representing natural size of specimen drawn magnified 5½ times.
lat. tels. Lateral view of 7th peraeon segment, pleon and telson.
pen. ♂ Appendages on 7th peraeon segment.
plp. 2. Second pleopod of ♂.

PLATE XXXVI. D.

Paridotea reticulata, n. sp.

tels. r. Telson.
urop. r. Uropod.
st. r. Seventh sternal plate.

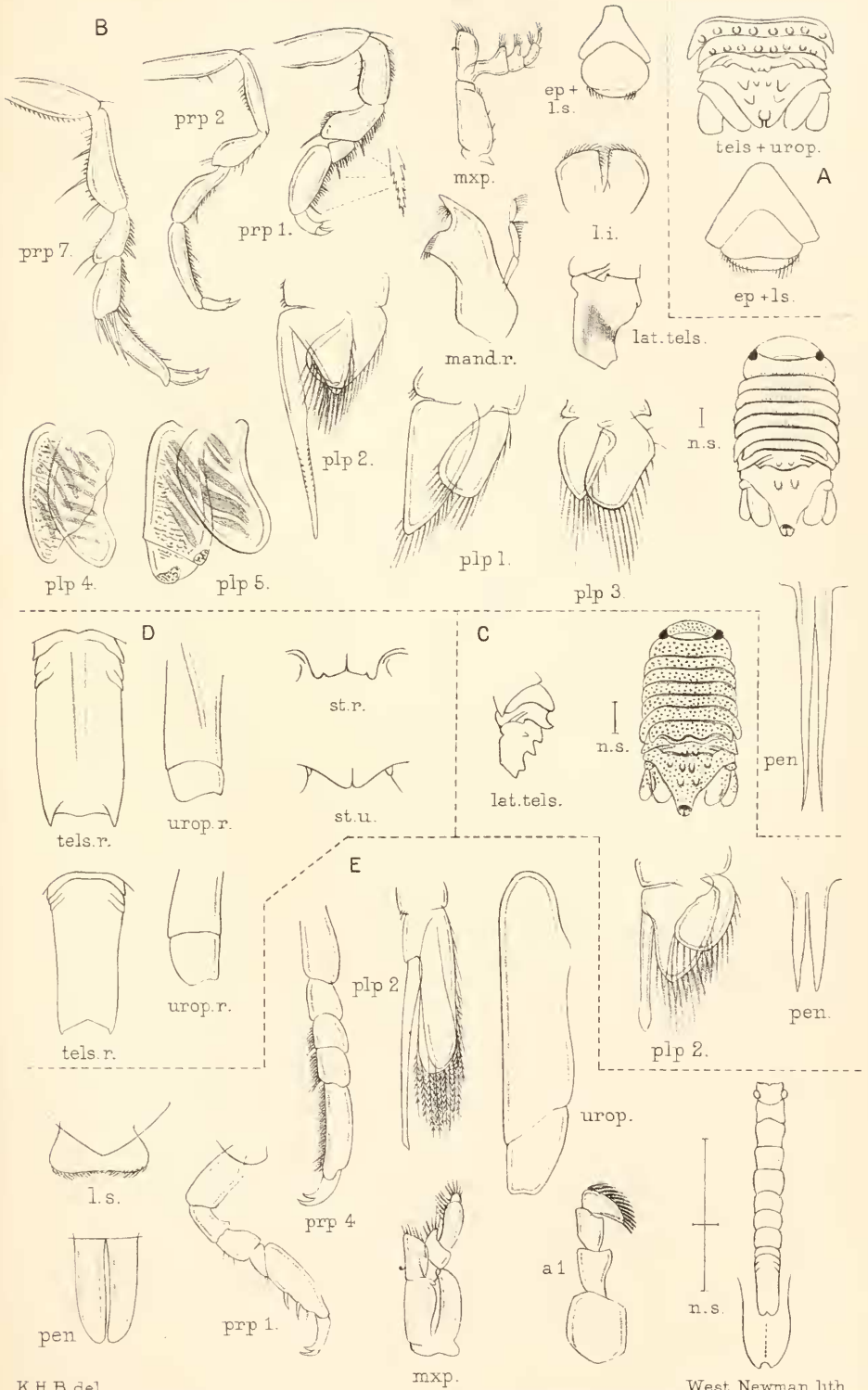
Paridotea ungulata (Pallas).

tels. u. Telson.
urop. u. Uropod.
st. u. Seventh sternal plate.) For comparison with those of *P. reticulata*.

PLATE XXXVI. E.

Paridotea fucicola, n. sp.

n.s. Line representing natural size of ♂ specimen drawn magnified 1½ times, with apex of telson further enlarged.
a.₁. First antenna.
l.s. Upper lip.
mxp. Maxilliped.
prp.₁, prp.₄. First and fourth peraeopods.
pen. ♂ Appendages on 7th peraeon segment.
plp.₂. Second pleopod of ♂.
urop. Uropod.



K.H.B. del.

West, Newman lith.

A. DYNAMENELLA BICOLOR *n.sp.* B. CYMODOCELLA SUBLEVIS *n.sp.*
 C. CYMODOCELLA PUSTULATA *n.sp.* D. PARIDOTEA RETICULATA *n.sp.*
 & P. UNGULATA (*Pallas*). PARIDOTEA FUCICOLA *n.sp.*

PLATE XXXVII. A.

Paridotea rubra, n. sp.

- n.s. Line representing natural size of ♂ specimen drawn magnified $1\frac{1}{4}$ times.
prp.₁. Fifth, sixth and seventh joints of 1st peraeopod.
urop. Distal portion of uropod.

PLATE XXXVII. B.

Idarcturus platysoma, n.g. et. sp.

- n.s. Line representing natural size of ♀ specimen drawn magnified $5\frac{1}{2}$ times.
a.₁. First antenna.
l.i. Lower lip.
mand. l. Left mandible.
mxp. ♀. Maxilliped of ♀.
prp.₁, prp.₇. First and seventh peraeopods with 7th joint of 7th further enlarged.
prp.₄ ♀. Fourth peraeopod of ♀ with marsupial plate, apex of 6th and 7th joints further enlarged.
per. ♂ appendage on 7th peraeon segment.
plp.₁. First pleopod.
plp.₂. Second pleopod of ♂ with apex of ♂ stylet further enlarged.
urop. Uropod.

PLATE XXXVII. C.

Iais pubescens (Dana).

- l.i. Lower lip of ♂.
mand. Mandible of ♂.
mxp. Maxilliped of ♂.
plp.₁. First pleopod of ♂.
plp.₂. Second pleopod of ♂.
operc. ♀. Operculum of ♀.

PLATE XXXVII. D.

Rocincla orientalis, Sch. & Mein.

- prp.₂. Second peraeopod with inner margin of 6th joint further enlarged.

PLATE XXXVII. E.

Gnathia africanus, Brnrd.

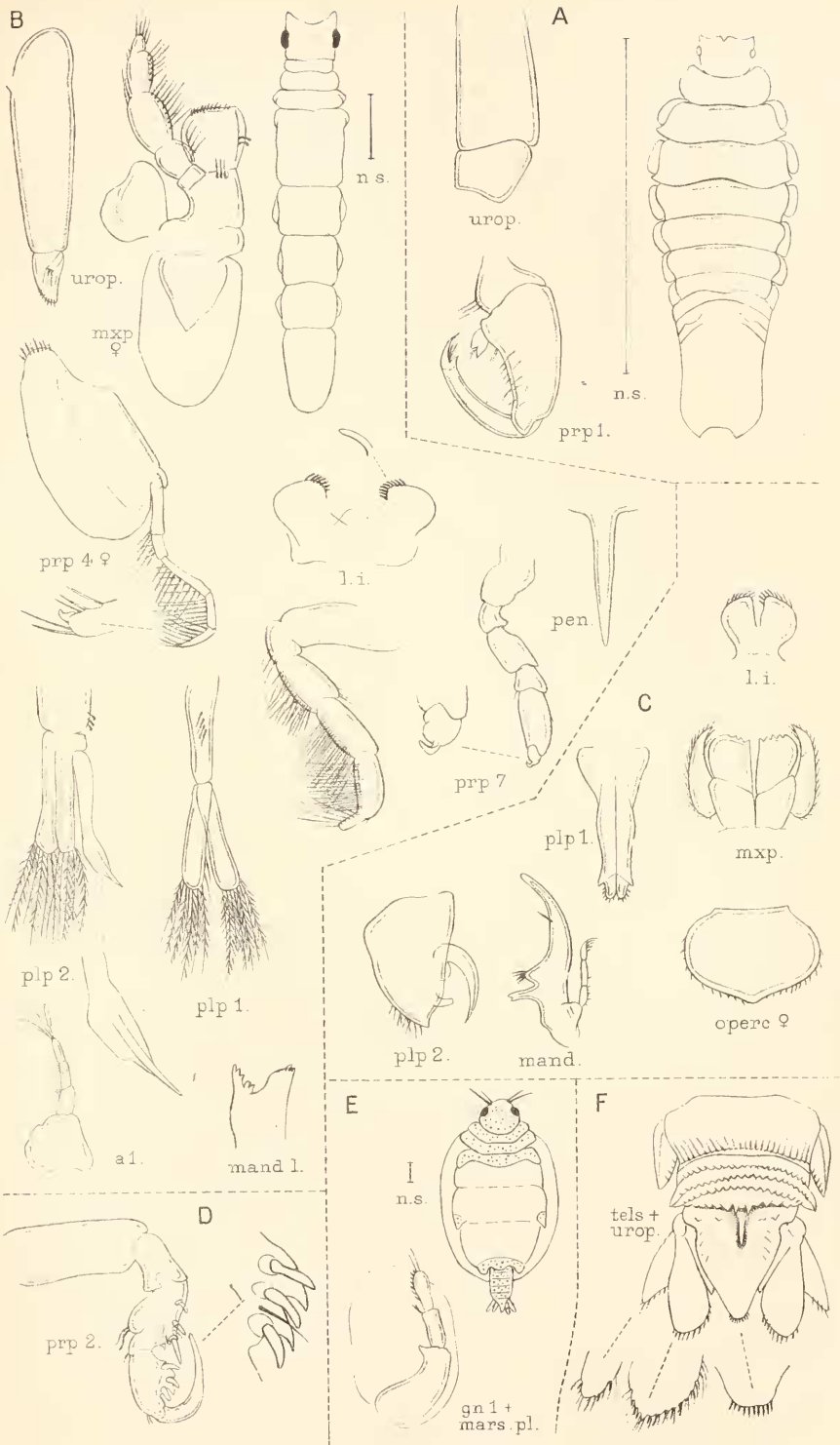
- n.s. Line representing natural size of ovigerous ♀ drawn magnified $9\frac{1}{2}$ times.
gn.₁. + mars. pl. First gnathopod with marsupial plate of ♀.

PLATE XXXVII. F.

Cirolana venusticauda, Stebbing.

Var. *simplex*, n.

- tels. + urop. Seventh peraeon segment, pleon, telson and uropods with apices of telson and inner and outer rami of uropods further magnified.



K.H.B. del.

West, Newman lith.

- A. *PARIDOTEA RUBRA* n. sp.
 B. *IDARCTURUS PLATYSOMA* n. g. et sp.
 C. *JAIS PUBESCENS* (Dana)
 D. *ROCINELA ORIENTALIS* Sch & Mein.
 E. *GNATHIA AFRICANUS* Brard.
 F. *CIROLANA VENUSTICAUDA* Stebb.
 var. *SIMPLEX* n.

PLATE XXXVIII, A.

Jaera serrata, n. sp.

n.s. Line representing natural size of specimen drawn magnified 14 times.

hd. + a.₁, a.₂. Head with 1st and 2nd antennae and upper lip.

mand. Mandible.

mxp. Maxilliped.

plp.₁, plp.₂, plp.₃, plp.₄, plp.₅. First-fifth pleopods of ♂.

tels. + urop. Telson and uropods with uropod further enlarged.

PLATE XXXVIII, B.

Janira exstans, n. sp.

hd. + a.₁, a.₂. Head with 1st and 2nd antennae.

mand. Mandible with cutting-edge further enlarged.

mxp. Maxilliped.

prp.₁ ♂, prp.₁ ♀. First peraeopod of ♂ and ♀.

plp.₁, plp.₂. First and second pleopods of ♂ and ♀.

plp.₃. Third pleopod.

operc. ♀. Operculum of ♀.

tels. + urop. Telson and uropod.

PLATE XXXVIII, C.

Kuphomunna rostrata, n. g. et sp.

n.s. Line representing natural size of specimen drawn magnified 20 times.

l.s., l.i. Upper and lower lips.

mand. l. Left mandible.

mand. r. Right mandible with cutting-edge further enlarged.

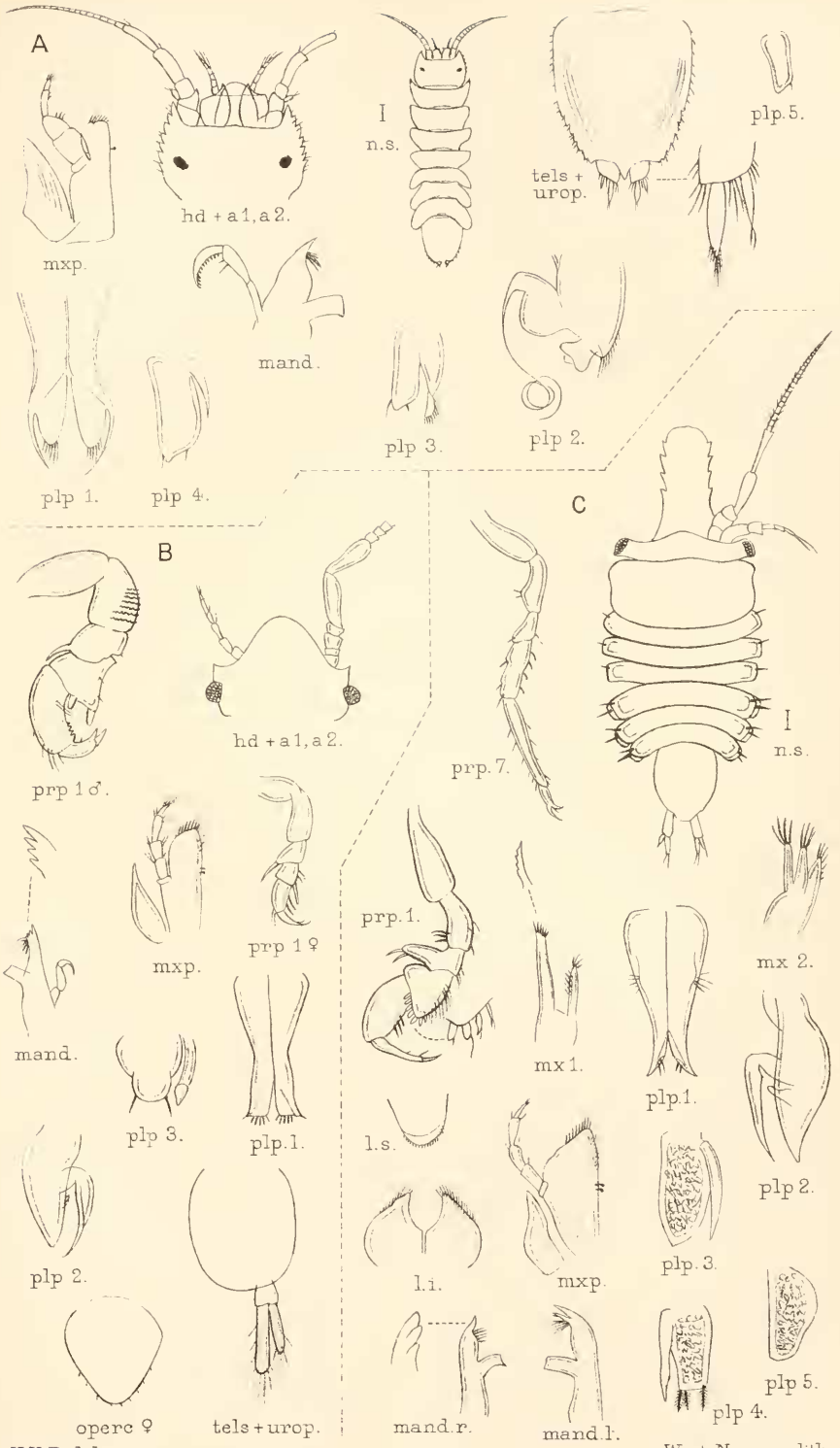
mx.₁, mx.₂. First and second maxillae with spine from apex of 1st further enlarged.

mxp. Maxilliped.

prp.₁. First peraeopod with spines from apex of 5th joint further enlarged.

prp.₇. Seventh peraeopod.

plp.₁, plp.₂, plp.₃, plp.₄, plp.₅. First-fifth pleopods of ♂.



K.H.B. del.

West, Newman lith.

A. JAERA SERRATA n.sp.

B. JANIRA EXSTANS n.sp.

C. KUPHOMUNNA ROSTRATA n.g. et sp.